APPENDIX E

Evidence and analysis on competitive constraints

Section 1: Introduction

E1 Market power is the ability, profitably, to sustain prices above the competitive level or restrict output or quality below competitive levels. Market power is not an absolute term but a matter of degree which varies according to the individual circumstances of the case.

E2 This appendix seeks to assess, in aggregate, the competitive constraints from both within and outside the relevant market. In particular, this appendix assesses how airlines might respond to Heathrow Airport Limited (HAL) if it were to exercise market power by:

- increasing prices by 5 to 10 per cent (a small but significant non-transitory increase in prices (SSNIP); or
- reducing the level of investment or quality of its services.[1]

E3 If aggregate constraints are sufficient, they could prevent HAL from increasing prices above, or reducing investment or service quality below, the levels expected in a well-functioning competitive market.

E4 In contrast to market definition (appendix D), which considers substitutability over a one-year period, this appendix considers the effectiveness of constraints over the Q6 period (April 2014 to December 2018). In other words, the CAA is seeking to answer the question, *'Would market mechanisms offer an alternative to regulation as an effective means of constraining market power?*'

E5 As noted above, to assess the degree of market power held by an airport operator the CAA has sought to identify the existence and assess the combined strength of all competitive constraints affecting HAL. For presentational purposes, each issue has been set out separately. However, this does not mean that each issue has been considered in isolation. The CAA has taken into account the cumulative effect of the constraints in reaching its conclusion.

[1] The OFT describes competitive constraints as 'market factors that prevent an undertaking from profitably sustaining prices above competitive levels'. (OFT, Assessment of market power guideline, OFT 415.)

E6 This appendix is structured as follows:

- Section 2 sets out the CAA's view on competitive constraints as outlined in the Consultation on Heathrow market power assessment, CAP 1051 (the Consultation);[2]
- Section 3 sets out the CAA's analysis on competitive constraints; and
- Section 4 sets out the CAA's conclusion on competitive constraints.

Section 2: The Consultation process

E7 In the Consultation, the CAA was minded to conclude that overall, the degree of airline switching was likely to be insufficient to constrain HAL from profitably raising prices by 10 per cent above the competitive level. It also considered, based on future demand forecasts, that this position was likely to be at least maintained in the short to medium term.

E8 In coming to this view, the CAA outlined:

- While there may be costs in scaling down operations for based and inbound carriers, these were unlikely to be prohibitive.
- The illiquidity of the secondary slot market, combined with the tightening of capacity, could constitute a switching cost.
- There are network benefits derived from connecting passenger feed and the presence of strategic partner airlines at Heathrow which cannot be found at other UK airports. This meant that switching costs are particularly high for partner airlines of British Airways (BA) – the home hub carrier – while airlines in other alliances or unaligned carriers might face a slightly lower but still significant switching cost from the loss of network benefits.
- The potential loss of cargo revenue may be an incremental switching cost for some airlines.
- Due to the strategic importance associated with operating to and from London, and Heathrow in particular, it would not be profitable for many airlines to switch away from Heathrow in a way that would constrain HAL's pricing and behaviour.
- That it is unlikely that any of the airlines at Heathrow would have countervailing buyer power.

[2] This document is available on the CAA's website: http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=5576.

- The critical loss estimates suggested that the scale of actual switching is likely to be insufficient to constrain even a 5 per cent price increase by HAL.
- Capacity constraints at Heathrow, combined with it being the UK's only hub airport, meant that HAL has little significant incentive to attractive new entrant airlines.
- Department for Transport (DfT) forecasts suggested that capacity constraints would increase at Heathrow over the short to medium term.
- With the Airports Commission submitting its final proposals in 2015, it is unlikely that any new capacity would be available before 2020 at the earliest.

E9 Three responses to the Consultation were received:[3]

- HAL;
- London Airline Consultative Committee (LACC) & Heathrow Airline Operators Committee (AOC); and
- Virgin Atlantic Airways (VAA).

Stakeholders' views

E10 In response to the Consultation, HAL noted that:[4]

- Capacity constraints should not rule out the possibility that marginal capacity might be available and that competition can take place even within capacity constraints by, for example, changes in the mix of airlines served by the airport.
- The CAA's critical loss analysis appears to be hampered by a number of issues, including:
  - Whether a critical loss analysis is appropriate in this situation.
  - The CAA's lack of direct elasticity evidence and the estimate it has used to replace this.
  - The use of assumptions that may lead to the critical loss estimate being overstated with no sensitivity analysis carried out on these.

[3] The responses to the Consultation are available on the CAA's website: http://www.caa.co.uk/default.aspx?catid=1350&pagetype=90&pageid=14785.

[4] HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraph 1.1.2.

E11 The LACC & AOC noted that as the UK's only hub airport, Heathrow is a unique and essential facility for airlines to compete in the downstream air transport services market. They also agreed with the CAA's assessment that HAL has substantial market power (SMP).[5]

E12 VAA considered that HAL's arguments that implied competition with European hubs airports were misplaced for a UK-based, long-haul airline (such as itself). In particular, VAA noted that:[6]

- It disagreed that HAL competes with European hub airport operators.
- The international routes it flies to are covered by bilateral air service agreements negotiated between Governments and these have varying levels of restrictions which can limit the airports from which VAA can fly from without further negotiation.
- The significant sunk cost investment that it has at Heathrow as a home base carrier (combined with the above) mean it is unable to relocate its services to a European hub.

Section 3: CAA analysis

E13 In light of the representations from stakeholders as part of the Consultation, the CAA has re-evaluated its assessment of the evidence and maintains its position that the degree of airline switching is unlikely to be sufficient to constrain HAL from profitably raising prices by 5 to10 per cent. The evidence and reasons for the CAA's conclusion is set out in the section below on an issue by issue basis.

E14 The CAA received many responses to the Heathrow: Market Power Assessment, the CAA's Initial Views - February 2012 (the Initial Views) and the Consultation. It has carefully read and considered all the points made in each response. This final decision contains summaries of, and answers to the key points raised.

5 LACC & AOC, LACC & AOC Response to CAA's Market Power Assessment of Heathrow Airport Limited, July 2013, p. 1.

6 VAA, http://www.caa.co.uk/docs/78/Virgin%20Atlantic%20response%20to%20HeathrowMPAJuly2013.pdf , p. 1.

E15 This section is structured as follows:

- Section 3.1 considers the types of switching available to airlines at the margin to constrain HAL in light of a price increase, and whether these could be a realistic response.
- Section 3.2 considers the required scale of switching to constrain a 5 to 10 per cent price increase and compares it with estimates of the scale of marginal demand for HAL's services of such a price increase.
- Section 3.3 considers the switching costs that might be faced by airlines when switching away marginal services.
- Section 3.4 considers whether airlines at Heathrow might be in a position to constrain HAL's pricing by exerting countervailing buyer power.
- Section 3.5 considers the capacity constraints at Heathrow, and potential implications of future demand growth.

Section 3.1: Potential options for airline switching

E16 This section considers the ways airlines may be able to constrain HAL by switching marginal aircraft or services away from Heathrow.

E17 To impose a competitive constraint on HAL by switching, the level of switching of marginal aircraft or services following a price increase – or fall in service quality or investment – must be sufficiently large to make a price increase unprofitable for HAL.

E18 In theory, there are several ways an airline can look to discipline an airport operator:

- Allocating volume growth to other airports, through starting new routes or increasing frequencies on routes operated.
- Reducing the frequency of existing based or inbound services to and from the airport.
- Grounding marginal aircraft during a particular traffic season.
- Moving based marginal aircraft to other bases, or opening a new base by relocating aircraft currently at the airport.

E19 The feasibility and likelihood that airlines would, in practice, make use of these potential switching options is considered below.

Excess demand at Heathrow

E20 Heathrow is already operating at near full capacity and cannot accommodate further growth in terms of flight numbers. There is also excess demand for arrival and departure slots during most times of day (see section 3.5). The high value of Heathrow's slots is also a clear indication that airlines are prepared to pay a significant premium to current airport charges to get access to Heathrow. As a result, any reduction in operations by incumbent airlines at Heathrow is likely to be replaced through new entrants or expansion by other incumbent airlines. This is likely to mitigate to a considerable extent, the ability of airlines to constrain HAL's pricing and behaviour, and consequently the viability of the types of switching considered below.

Allocating new growth to other airports

E21 Allocating volume growth to other airports requires an airline to have access to sufficient spare capacity at other airports across its network and/or at new airports, as well as sufficient aircraft and other relevant assets. However, this form of switching may not, by itself, lead to a reduction in the short run of an airline's existing services at Heathrow, which means that this strategy might not result in a significant constraint.

E22 The extent to which this strategy is likely to constrain an airport operator will depend on the level of spare capacity at the airport in question and the balance between existing traffic and future growth. An airport operator that has significant spare capacity at its airport and is highly dependent on traffic growth is more likely to be constrained by such behaviour than an airport operator that already has a mature airline customer base and limited spare capacity, with lower prospects of incremental growth at the airport.

E23 As mentioned earlier, Heathrow is already operating at near full capacity. Evidence also suggests that airlines that have split their operations at both Heathrow and Gatwick have done so in response to the lack of spare capacity at Heathrow. For example, an airline has told the CAA:

Hypothetically, if it had sufficient slots at LHR, it would consider [✂] *and* [✂]*. However this is* [✂].[7]

[7] Source: [✂].

E24 Similarly, Air Malta has indicated that it had to expand its services at Gatwick rather than at Heathrow (its preferred location):

It used to only operate from LHR, but because of the limited availability of slots – which meant it could not grow further at LHR – the only place for them to go in London was LGW.[8]

E25 This suggests that airlines at Heathrow have expanded at other London airports and that allocating new growth at other airports has not constrained HAL's pricing (which has increased significantly over recent years – see appendix F). The CAA therefore considers that allocating new growth to other airports is unlikely to be an effective means of constraining HAL.

Reducing frequencies on existing services

E26 Reducing the frequency of existing routes to and from Heathrow might constrain HAL if the reduction is of a sufficient scale, although it could have implications for the quality of an airline's product. That is, passengers may value higher levels of service frequency.

E27 There are a number of ways an airline can reduce frequency, including through reducing aircraft utilisation and altering flight patterns. Both of these issues are examined below.

Reducing aircraft utilisation

E28 Full service carriers (FSCs) typically consider the effect of modifying their short-haul and long-haul services, including reducing frequency, on a network-wide basis. For example, in a 2010 presentation, BA noted, with respect to the commencement of a Gatwick-Las Vegas service:

Our decisions had to be evaluated at the overall Network level.[9]

And that:

For long-haul routes, one slot pair per day is required (assuming a daily service).[10]

E29 BA also outlined the required number of frequencies for a full day of service, on both short-haul and long-haul routes:

For a short-haul service to operate a full day, generally 3 slot pairs are required in a given day, one of which will be timed during peak hours.[11]

8 Source: Air Malta [✂].

9 Source: BA [✂].

10 Source: BA [✂].

And:

For long-haul routes, one slot pair per day is required (assuming a daily service).[12]

E30 In addition, Cathay Pacific, an inbound FSC operating a service to Hong Kong from Heathrow four times a day, said:

[It] couldn't envisage that it would be so bad that it would have to stop operating all 4 flights. Instead it would scale down operations.

E31 However, Cathay Pacific also noted that:

Moving aircraft around is not an easy task and in terms of route planning, it is important to fit in as much flying time as possible (and minimise down-time).[13]

E32 This implies that reducing aircraft utilisation is unlikely in light of a 5 to 10 per cent increase in airport charges, given the low proportion that airport charges represent of total airline costs. However, reducing aircraft utilisation may become a necessary response to increasing airlines' operating costs (of which airport charges are a component) and/or weakening of passenger demand.

E33 Regarding the minimum level of frequencies required for the continued viability of a route, Lufthansa told the CAA that:

When asked whether there is a minimum number of frequencies that it had to operate to LHR, it added that it does look at this in terms of the contribution to the network result.[14]

E34 In 2007, VAA commented on the level of increase in airport charges it would need to face before considering switching away:

If airport charges increased by 50% or 100% at Heathrow...Virgin Atlantic would not necessarily respond to this increase by reducing the number of aircraft, frequency or aircraft size.[15]

[✂].[16]

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11 Source: BA [✂].

12 Source: BA [✂].

13 Source: Cathay Pacific

14 Source: Lufthansa [✂].

15 CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3.5), p. 65.

16 Source: VAA [✂].

E35 The above implies that reducing frequencies might be a viable way for an airline to respond to a price increase. However, it also considers that network-level considerations may make this response more costly than continuing to operate the current frequency and service and simply absorbing the price increase.

E36 It is also unclear from the evidence that switching would result – or at least to a sufficient scale – from a 5 to 10 per cent increase in airport charges. For example, a stakeholder told the CAA that:

In light of a 10 per cent price increase at LGW, its first reaction would be to absorb the cost increase in the short run and in the longer term try to find competitive ways of passing through the cost to passengers, as well as find ways to modify its operations which would not result in moving services away from the airport.[17]

Modifying flight patterns

E37 Another option to reduce aircraft utilisation could be to modify an aircraft's flight pattern. For example, a flight pattern could be changed from a back and forth pattern to a W or triangular pattern, which would reduce the number of sectors flown from an airport. A number of FSCs operating short-haul sectors commented on the potential use of W and triangular patterns.

E38 With respect to short-haul routes, BA told the CAA that:

It does not operate any W patterns.

The introduction of W patterns would require additional assets, if BA was to maintain the total amount of Gatwick flying (it would have to buy or lease more aircraft), it would also need to consider market presence, operational costs and infrastructure.

Starting W patterns would also involve additional point-to-point flights between non-base airports, as well as expensive night stops at these airports. E.g. for any one night stop additional crews and hotel costs are incurred.[18]

[17] Source: [✂]. Although this comment was made in relation to Gatwick, the CAA considers that it is applicable to Heathrow.

[18] Source: BA [✂].

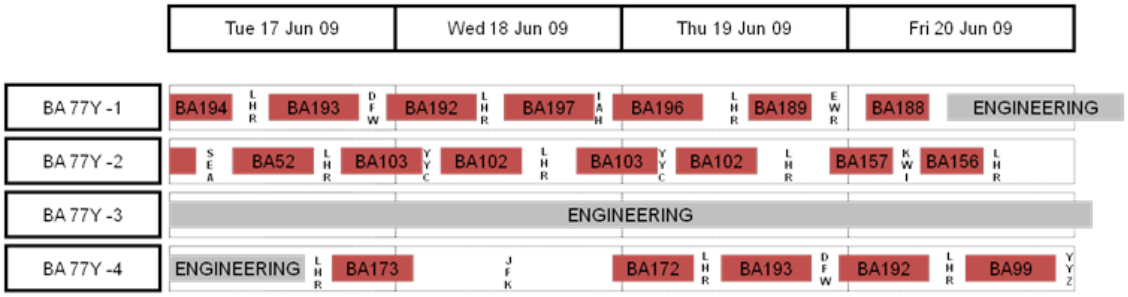
E39 This evidence was consistent with evidence provided by Aer Lingus, which stated that:

The feasibility of reducing frequencies through the use of W patterns would be difficult as they could increase costs, and are inefficient and complex.[19]

E40 Evidence from Aer Lingus also shows that it reduced the size of its aircraft at Heathrow following continual price increases.[20] However, the CAA considers this is unlikely to happen in response to a 5 to 10 per cent increase in airport charges.

E41 In contrast to short-haul services, aircraft on long-haul routes typically perform a back and forth pattern across the week between a base airport and various destinations, although some time needs to be scheduled for engineering. This is illustrated in Figure E.1 (below), which shows how BA utilises various B777s.

Figure E.1: Examples of flight patterns for B777s – BA



Source: BA [✂]

E42 BA told the CAA that:

Its long-haul fleet is fully utilised all year round as aircraft are expensive assets which need to be used in order to make a profit.[21]

E43 As a result, there may be less flexibility to reduce long-haul aircraft utilisation than short-haul services. This means that modifying long-haul flight patterns is unlikely to be a viable switching response in light of a 5 to 10 per cent increase in airport charges.

E44 The CAA therefore considers that the use of alternative flight patterns is unlikely to be considered as a viable means of modifying services to constrain the airport operator in light of a price increase.

19 Source: Aer Lingus [✂].

20 Source: Aer Lingus [✂].

21 Source: BA [✂].

Grounding marginal aircraft

E45 For based carriers at Heathrow, a more extreme form of reducing frequencies is to ground (i.e. fully reduce the utilisation of an aircraft for all or part of the year) a number of marginal aircraft.

E46 While there is some precedent for based FSCs grounding aircraft[22],BA has also told the CAA that the main reasons for the changes to all its operations (including grounding of aircraft), were a combination of factors:

... due to the economic crisis and recession, the increase in fuel and the high passenger charges (Q5) where Gatwick airlines faced a 56% increase in prices:

Its short-haul fleet of 34 based aircraft was reduced to [✂].

It also had to ground its 757 fleet.[23]

E47 VAA has also told the CAA that it does not generally ground aircraft in response to an airport operator price increase. For example, VAA noted that:

it has not tended to ground aircraft, except in 2008/09 during the recession and at Heathrow (3 grounded aircraft) but that generally grounding aircraft would not be a realistic response to 10 per cent price increase.[24]

E48 Attempts by airlines to curtail airport charge increases at Heathrow also appear to have failed, with airlines highlighting that HAL has increased prices year on year over successive years (see discussion on countervailing buyer power later in this appendix).

E49 Overall, the CAA considers that while grounding aircraft is a possible response from an airline to a price increase by an airline operator, it does not appear to be a likely means of switching away in light of a 5 to 10 per cent increase in airport charges. Other factors are likely to play a more significant role in determining whether or not an airline will ground marginal aircraft.

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22 For example, in winter 2009, BA grounded aircraft in response to falling profit. See: http://www.guardian.co.uk/business/2009/jul/31/ba-loss-airline-industry-gloom accessed February 2013 http://www.flightglobal.com/news/articles/british-airways-to-ground-16-747s-and-757s-for-winter-326904/ (accessed February 2013).

23 Source: BA [✂]. This quote refers to BA's operations at Gatwick; however, it is still insightful about the multiplicity of reasons that lead to grounding aircraft.

24 Source: VAA [✂].

Switching based aircraft

E50 Switching marginal aircraft based at Heathrow is a means for an airline to fully remove based capacity to constrain HAL. In theory, airlines might be able to switch aircraft to existing or new bases.

Switching marginal aircraft to existing bases

E51 Two based FSCs at Heathrow, BA and VAA, also operate smaller bases at Gatwick.[25] The proximity of these bases would suggest that switching marginal aircraft between the two airports might involve relatively low switching costs for physically relocating the aircraft.

E52 However, in its 2007 response to the Competition Commission's (CC) Statement of Issues for the BAA airports market investigation, BA indicated that:

For BA, with its global hub at Heathrow, few services can be moved between Heathrow and other airports. BA's services at Heathrow generate revenues not only by carrying point to point passengers but also by increasing the number of passengers on other BA routes. That is, BA's Heathrow services give rise to network effects which increase economic efficiency and benefit consumers. Nonetheless, BA does occasionally switch from Heathrow to Gatwick due to congestion, lack of capacity and the high cost operating environment at Heathrow.[26]

E53 The CAA considers that loss of revenue from network benefits for BA from moving services out of Heathrow would be higher that the potential benefit of seeking to constrain HAL's behaviour.

E54 VAA told the CAA in contemplating a move from Gatwick to Heathrow:

In order to move aircraft from LGW to LHR, it would not incur significant costs of physically relocating the aircraft.[27]

E55 However, VAA also noted that:

... there would be costs in acquiring slots and reconfiguring the aircraft from leisure configuration (circa 14 Upper Class seats) to a business configuration (33-45 Upper Class seats) to meet the demand profile of the routes at LHR.

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25 VAA also has a base at Manchester.

26 BA Statement of Issues response 29 October 2007, paragraph 2.4, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2007/airports/pdf/issues_statement_response_ba.pdf.

27 Source: VAA [✂].

In addition, the operating costs at both airports would increase (decrease) with the addition (withdrawal) of aircraft.[28]

E56 The CAA considers that if an airline was to switch services away from Heathrow it would also incur reconfiguration costs. However, evidence also suggests that relocating marginal aircraft to Gatwick would not be a viable option for airlines operating from Heathrow, as airlines do not consider Gatwick to be a suitable substitute for their Heathrow services. For example, in 2007, VAA told the CC that:

It is Virgin's experience that Gatwick fails to act as a suitable substitute for Heathrow, but to a large extent Heathrow may be a competitor to Gatwick.[29]

E57 Similarly, in 2007 Delta told the CC:

LHR is the preferred choice for most Delta customers and LGW the second choice...LHR would be a reasonable substitute for substantially all passengers [Delta] currently services with its LGW services, and would be a preferred alternative by most of those passengers. (The reverse is not true. LGW is not necessarily an adequate substitute for some passengers, particularly time-sensitive business passengers, who evidence a strong preference for LHR service).[30]

E58 For based airlines at Heathrow, it is clear that while physically relocating an aircraft to an existing base entails relatively low switching costs, there are strategic and economic factors which deter airlines from moving aircraft away from Heathrow. This is in part due to the strategic importance of Heathrow to FSCs, as discussed in section 3.3.

Switching marginal aircraft to a new base

E59 While switching between existing bases appears to be a viable means of switching away from Heathrow, relocating aircraft to a new base is less likely to be a possible response to a price increase. For example, BA told the CAA that:

When an aircraft is based at an airport, it incurs a range of significant costs. For example there are engineering requirements which would require the establishment of an engineering base. The aircraft would need crew: flight, cabin and ground, which would require the establishment of a

[28] Source: VAA [✂].

[29] CC, BAA Investigation, Annex 3.5, Airline responses to substitutes for BAA London airports and price reductions at these airports (Annex 3).

[30] CC, BAA Investigation, Annex 3.5, Airline responses to substitutes for BAA London airports and price reductions at these airports (Annex 3).

crew base. And then there would also be the costs of disruption involving the changing of schedules and the marketing costs of establishing a brand presence at a new airfield. These costs are all large and relatively fixed, and even if they were borne, would be borne for a single aircraft which would be a sub-scale and inefficient operation. Given the scale of these costs, we do not believe that it would be viable to move a single aircraft.[31]

E60 This argument is also likely to apply to moving a small number of aircraft to a new base, as this scale of switching would be insufficient for the new base to achieve its minimum efficient scale and would be likely to involve unrealistic costs to constrain a 10 per cent increase in airport charges.

Stakeholders' views

E61 HAL considered that the CAA's analysis understates the switching options open to airlines at Heathrow. In particular, HAL considered that the CAA had not considered cumulatively or in aggregate the ways that airlines might have of switching from Heathrow.[32]

CAA views

E62 The CAA agrees that the competitive constraints facing HAL should be assessed in a cumulative way to establish the overall effect of the various constraints on HAL's ability to increase airport charges. This was the approach that the CAA adopted in the Consultation (although like this document, each issue was set out separately).

Conclusion

E63 This section has considered the viability of switching options available to airlines at Heathrow in light of a 5 to 10 per cent increase in airport charges.

E64 The first option involves allocating new growth to other airports. However, as Heathrow is operating at capacity, the allocation of new growth is unlikely to have an effect on HAL's pricing. Furthermore, excess demand at Heathrow is likely to mean that as capacity becomes available from marginal airline switching, it will be backfilled by new entrants or expanding incumbent airlines. This will mitigate the effects of any type of marginal airline switching.

31 Source: BA [✂].

32 HAL, Response to CAA's Market Power Assessment, July 2013, paragraphs 2.3.5 to 2.3.7.

E65 The second option involves reducing frequencies, either through reducing aircraft utilisation or modifying flight patterns. While this appears to be a viable response to a 5 to 10 per cent price increase, the scale of such switching is unlikely to be sufficient to constrain a price increase. This is because the cost of reducing aircraft utilisation is likely to outweigh the benefits of trying to impose a constraint.

E66 The third and fourth options involve grounding and switching based marginal aircraft away from Heathrow. As there are no suitable substitute airports in terms of network benefits and airline yields, the scope for FSCs to relocate aircraft to alternative London airports is likely to be very limited. The considerable costs of grounding aircraft and of opening new bases are also likely to limit significantly these types of switching.

E67 More generally, it is unclear from FSC evidence that switching would occur, or at least switching of a sufficient scale, following a 5 to 10 percent price increase. Instead, FSCs are likely to absorb the price increase in the short run, possibly passing through the increase to passengers in the longer term. Continual and cumulative price increases might lead to some, most likely inbound, FSCs switching away in some form, although this does not appear to have materialised to a significant degree.

E68 For based airlines at Heathrow and other airlines heavily reliant on Heathrow connecting flows, reducing the frequency of services that feed the network will have affects in terms of overall airline network profitability. This issue, further discussed in section 3.3, suggests that marginal frequencies of inbound airlines are more likely to be switched away than those of based airlines.

E69 Overall, the CAA therefore considers that there are limited options for airline switching and the scale of such switching in light of a 10 per cent price increase is unlikely to be sufficient to constrain HAL.

Section 3.2: Critical loss analysis and potential volume loss estimates

E70 This section presents estimates of the scale of reduction of frequencies that would be required to make a 5 or 10 per cent price increase unprofitable for HAL. This is also known as critical loss analysis. The critical loss is then compared with estimates of the scale of likely switching away from Heathrow that might occur in response to airport charge increases to reach a view as to whether it is likely to constrain a price increase by HAL.

The critical loss

Methodology and assumptions

E71 Critical loss analysis examines the level of passenger demand reduction and flight/aircraft withdrawal by airlines that would be required for an airport charge increase to be unprofitable for the airport operator. The analysis considers a SSNIP of between 5 and 10 per cent.

E72 The analysis examines the impact of an increase in aeronautical revenue on top of HAL's current total revenue per passenger, which includes non-aeronautical (commercial) revenue. Due to the vertical nature of the relationships between the airport operator, airline and passengers, the CAA focused its critical loss analysis on increases in charges to airlines. However, the analysis takes into account the potential loss to HAL of both the aeronautical and non-aeronautical revenue for each passenger switching away.

E73 The CAA's analysis uses regulatory accounts information for 2012/13 and takes into account the impact of a change in charges on operating costs and commercial revenues. The analysis makes the following assumptions:

- Operating cost elasticity with respect to output of 0.5 based on analysis undertaken by Steer Davies Gleave (SDG) as part of the Stansted mid-quinquennium review, using a sample of airports.[33] An alternative elasticity of 0.3 has been used based on work undertaken by the CC as part of the Stansted Airport Limited (STAL) Q5 review.[34]
- Non-aeronautical revenue variability assumptions are shown in Figure E.2 (below). For the purposes of this analysis aeronautical revenue from non passenger aircraft is included with non-aeronautical revenue as non-passenger traffic is assumed not to vary with

[33] SDG, Stansted airport: Review of operating expenditure and investment consultation (Annex D): Mid-term Q5, May 2012, p. 57. This document can be accessed at: http://www.caa.co.uk/docs/5/SDGStanstedReport.pdf.
The elasticity is quoted as 0.44 but increases to 0.5 in periods with declining traffic. As an increase in charges is likely to lead to a decline in traffic the elasticity of 0.5 has been used. This elasticity was derived from a large sample of airports and can be considered appropriate for HAL.

[34] CC, Annex 5 of Appendix H, Stansted Airport Ltd: Q5 price control review. This document can be accessed at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2008/fulltext/539ah.pdf.

passenger traffic.[35] Rail revenue is assumed to vary with passenger traffic.

Figure E.2: Non-aeronautical revenue variability assumptions

Non-aeronautical revenue category	2012/13 revenue (£m)	Proportion variable (%)	Variable revenues (£m)
Other traffic related	15.3	0%	0.0
Retail	437.5	100%	437.5
Property	138.5	100%	138.6
Rail	116.7	100%	116.7
Other	221.4	50%	221.4
Non-passenger traffic	5.9	0%	0.0
Total	935.4	81%	759.2

Source: HAL Regulatory Accounts for the year ended 31 March 2013 and CAA analysis

Critical loss of passengers

E74 Figure E.3 (below) shows the outcomes of the critical loss analysis that the CAA has undertaken. The analysis shows that a 5 to 10 per cent increase in aeronautical charges will increase aeronautical revenue from an average of £18.35 per passenger (the price cap for 2012/13) to £19.26 and £20.18 per passenger respectively for a 5 to 10 per cent increase. For the same number of passengers going through the airport, this results in total aeronautical revenue increasing by £64.5 million and £129 million respectively.

E75 Given the above, and taking into account the potential reduction in operating costs and loss of aeronautical and non-aeronautical revenue from lower passenger numbers, gives a critical loss of passengers of 2.52 million to 2.85 million for a 5 per cent increase in airport charges, and 4.86 million to 5.47 million for a 10 per cent increase.[36] This is the reduction in passengers required for the airport charges increase to be unprofitable for the airport operator.

[35] The basis for this assumption is that the loss of one passenger should not affect, for example, the bellyhold cargo tonnage carried on the same aircraft.

[36] This is calculated as follows: [Increase in total revenue]/([variable revenue per passenger]–[operating cost per passenger]*[Opex elasticity]).

Figure E.3: Critical loss in terms of passengers (£million)

	Increase in aeronautical revenue	
SSNIP increment	**5%**	**10%**
Background data		
Passengers (million passengers per annum (mppa))	70.322	70.322
Aeronautical revenue	1,290.1	1,290.1
Non aeronautical revenue	935.4	935.4
Total revenue	2,225.5	2,225.5
Operating costs	1,039.5	1,039.5
Aeronautical revenue per passenger (£ per passenger)	18.35	18.35
Non aeronautical revenue per passenger (£ per passenger)	13.30	13.30
Variability of non aero revenue (%)	81	81
Total revenue per passenger (£ per passenger)	31.65	31.65
Operating costs per passenger (£ per passenger)	14.78	14.78
After price increase		
Aeronautical revenue per passenger (£ per passenger)	19.26	20.18
Non aeronautical revenue per passenger (£ per passenger)	13.30	13.30
Variable revenue per passenger (£ per passenger)	30.06	30.98
Total revenue per passenger (£ per passenger)	32.56	33.48
Increase in revenue (£m)	64.5	129.0
Critical loss (mppa) (SDG opex elasticity)	2.846	5.470
Critical loss (mppa) (CC opex elasticity)	2.517	4.861

Source: HAL regulatory accounts 2012/13 and CAA analysis

Critical elasticity

E76 Based on the above critical loss figures, the implied critical elasticity can be derived. The implied 'critical' elasticity estimates the proportion of passengers that would need to switch away to make a 10 per cent increase[37] in airport charges unprofitable for HAL.

[37] This analysis can be applied to any price increase.

E77 Figure E.4 shows the implied demand elasticity from the change in passenger numbers.[38] The reduction in passengers implies that if the airport charge elasticity is greater than 0.7 to 0.8, the airport operator cannot profitably increase charges. This means that, for a 10 per cent increase in airport charges, between approximately 7.2 per cent and 8.2 per cent of passengers would be required to switch away to constrain HAL's price increase.

Figure E.4: Passenger demand elasticity required to render a SSNIP unprofitable

	Increase in aeronautical revenue	
SSNIP increment	**5%**	**10%**
Critical loss (mppa) (SDG opex elasticity)	2.846	5.470
Critical loss (mppa) (CC opex elasticity)	2.517	4.861
Change in passengers SDG	4.3%	8.2%
Change in passengers CC	3.7%	7.2%
Implied elasticity SDG opex elasticity	0.81	0.78
Implied elasticity CC opex elasticity	0.72	0.69

Source: HAL regulatory accounts 2012/13 and CAA analysis

E78 Figure E.5 (below) converts the critical loss in passenger numbers calculated above and converts it in to flights per annum and daily slot pair equivalents. This conversion takes the weighted average number of passengers per flights at Heathrow in 2012 as 205.[39] Overall, this implies that airlines at Heathrow would need to withdraw the equivalent of 13,000 to 27,000 flights per annum. This translates to between 17 and 37 daily slot pairs to make a SSNIP of 5 to 10 per cent unprofitable for HAL.

Figure E.5: Implied passenger, flight and aircraft loss required to render a SSNIP unprofitable

Critical Loss	5% – CC Opex Elasticity	5% – SDG Opex Elasticity	10% – CC Opex Elasticity	10% – SDG Opex Elasticity
Passengers (mppa)	2.517	2.846	4.861	5.470
Flights per annum	12,708	14,558	23,710	26,682
Slot Pairs	17	19	32	37

Source: CAA analysis

[38] The demand elasticity is the percentage change in the quantity demanded divided by the percentage change in price.

[39] Weighted average constructed on the basis of the Summer 2012 ACL start of season report, p. 8.

Estimates of likely loss

E79 In the previous sub-section (see paragraph E75), the CAA estimated that approximately 5 million passengers would need to switch away from Heathrow to make a 10 per cent price increase (a SSNIP) unprofitable for HAL.[40] In the discussion of switching costs in section 3.3 (below), a number of characteristics that are likely to describe HAL's marginal airlines (i.e. those most likely to switch away from the airport in light of a 10 per cent price increase) are identified.

E80 These characteristics are likely to include:

- Inbound services, due to the small infrastructure costs at the airport.
- Carrying less than 10 per cent connecting passengers on their services, which suggest that the services could be sustainable from a point-to-point airport.
- Not aligned to a particular airline alliance, which should reduce the level of switching costs resulting from the presence of strategic partners.

E81 Airlines that have these three characteristics appear more likely to be able and willingly to switch away from Heathrow than those that do not. That is, they would be most likely to be HAL's marginal airlines[41]. Although this estimate is fairly rudimentary, it allows a comparison of potential marginal switching against the critical loss figures set out above.

E82 According to this methodology, the marginal airlines at Heathrow are likely to represent approximately 1.9 million passengers. Figure E.6 (below) presents the details of this estimate. The airlines listed are those carrying less than 10 per cent connecting passengers on their flights. The final column highlights carriers that are not members of one of the three global airline alliances.

E83 The estimate of 1.9 million passengers is below the critical loss value of approximately 5 million passengers for a 10 per cent price increase. It is also below the critical loss for a 5 per cent price increase of approximately 2.7 million (as shown in Figure E.7).[42] This suggests that such price increases would be profitable for HAL, as the switching in response would be insufficient to constrain its pricing. Furthermore, the excess demand at Heathrow is likely to mean that any airline switching could be replaced by

[40] The estimated critical loss for a 5 per cent price increase was approximately 2.7 million passengers.

[41] This quantification is just for illustration purposes. The CAA does not consider that all these airlines would switch in light of HAL introducing a SSNIP.

[42] These are the estimates with the lower required critical loss.

new entrants or expanding incumbent airlines. This is likely to mitigate the constraint from airline (and, indirectly passenger) switching.

Figure E.6: Summary of marginal airlines

Airline	Surface passengers	Connecting passengers	Total passengers	% connecting passengers	Unaligned
Biman Bangladesh Airlines	73,920	8,101	82,021	9.9	X
Air France	608,646	66,361	675,007	9.8	
Arik Air	109,537	11,723	121,260	9.7	X
Turkish Airlines	509,287	49,815	559,102	8.9	
KLM	701,117	66,320	767,437	8.6	
Etihad Airways	462,823	43,234	506,057	8.5	X
Aegean Airlines	381,479	33,993	415,472	8.2	
Delta	1,101,098	97,573	1,198,671	8.1	
Air Astana	17,438	1,491	18,929	7.9	X
Alitalia	773,475	58,643	832,118	7.0	
Contact Air	91,928	6,749	98,677	6.8	
Vueling	246,477	14,036	260,513	5.4	X
Royal Brunei Airlines	164,500	8,243	172,743	4.8	X
Air Botnia (Blue 1)	91,085	4,288	95,373	4.5	X
Air Seychelles	13,135	545	13,680	4.0	X
Aeroflot	237,340	7,788	245,128	3.2	
Tunis Air	43,523	1,267	44,790	2.8	X
Pakistan International Airlines	287,051	8,220	295,271	2.8	X
Uzbekistan Airways	22,743	501	23,244	2.2	X
All charters	53,800	747	54,547	1.4	X
Air China	144,653	-	144,653	0.0	
Azerbaijan Airlines	16,673	-	16,673	0.0	X
EVA Airways	188,837	-	188,837	0.0	X
Syrian Arab Airlines	14,757	-	14,757	0.0	X
Total (Italics)			1,908,695		

Source: CAA Passenger survey 2011

Note: EVA Airways to join Star Alliance in 2013.

E84 Overall, the CAA considers that this means that the estimated likely loss of traffic is smaller than the lower bound estimate of required switching to constrain a 5 and a 10 per cent price increase.

Figure E.7: Comparison of critical and actual loss

Critical loss	5% – CC Opex elasticity	10% – CC Opex elasticity	Estimate of marginal airlines
Passengers (mppa)	2.517	4.861	1.909
Flights per annum	12,708	23,710	9,311
Slot pairs	17	32	13

E85 However, the estimates in this section are subject to a number of limitations:

- First, the loss estimates were not derived by applying a price increase, but rather on the basis of airline characteristics that can most reasonably considered to be descriptive of marginal airlines.
- Second, airlines that are not aligned to an alliance may still face significant switching costs from the presence of partner airlines through the existence of code-sharing and interlining agreements.

E86 For example, with respect to the second bullet point (above), Vueling is an unaligned LCC airline that carries approximately 5 per cent connecting passengers. However, it has signed an interlining agreement with BA.[43] The CAA considers that the benefits Vueling derives from this agreement are likely to be of significant strategic importance and are likely to reduce the likelihood of the airline switching away from Heathrow. Subsequently, in November 2012, IAG acquired the totality of Vueling's shares.

E87 As a result, it is possible that the 1.9 million passengers that represent the marginal airlines at Heathrow could be an overestimate of the level of switching. However, this analysis can serve as an approximate indication of the more price sensitive airline customers at Heathrow and so inform the analysis of the likely source and scale of marginal switching. In fact, as illustrated in appendix F, continual airport charge increases since 2005 in real terms has not resulted in significant airline switching. While the effects of the contemporaneous economic recession cannot be clearly separated from the effects the price increases at Heathrow, it remains the case that airport charges increased during this period. This, coupled with the existence of excess demand for slots at Heathrow, suggests that HAL might be able to profitably increase charges by, for example, another 10 per cent.

[43] http://www.vueling.com/en/we-are-vueling/press-room/press-releases/corporate/vueling- flights-from-el-prat-barcelona-to-connect-with-british-airways-broad-network/ (accessed April 2013).

Stakeholders' views

E88 HAL considered that the CAA's critical loss analysis appeared to be hampered by a number of issues, including:[44]

- Whether a critical loss analysis is appropriate in this particular situation.
- The CAA's lack of direct elasticity evidence and the estimate it used to replace this.
- The use of assumptions that may lead to the critical loss estimate being overstated with no sensitivity analysis carried out on these.

CAA views

E89 In the Consultation, the CAA derived an estimate of the likelihood of marginal switching by airlines to compare to the critical loss. The CAA acknowledges that the absence of a means of estimating direct actual loss numbers and elasticities is a limitation to its analysis.

E90 The CAA decided not to commission a passenger demand forecasting run from DfT (as it has done in the case of Gatwick Airport Limited (GAL) and STAL), due to difficulties in using the National Air Passenger Allocation Model (NAPALM) to estimate airport charge increases for Heathrow. In particular, the CAA considered that:

- As the airport is forecast to be (100 per cent) full by 2014, any passenger switching estimated would, in effect, represent modelled adjustments around a binding capacity constraint. This means that the estimates would not be particularly informative of the response of passenger demand to an increase in airport charges.[45]
- The way loss estimates were modelled for Gatwick and Stansted used an increase in surface access costs as a proxy for airport charge increases was not suitable for Heathrow. At Heathrow, where over a third of passengers are connecting (not surface) passengers, means that it would be difficult to model an airport charge increase for all passenger categories and the results of the modelling would be hard to interpret.

[44] HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraphs 2.4.1 to 2.4.9.

[45] This is in comparison to the estimates derived for GAL and STAL in the minded to consultations.

E91 However, HM Revenue and Customs produced a report[46] that uses NAPALM to model the effect of potential increases of Air Passenger Duty (APD) at Heathrow. While the level of switching of APD paying passengers that would result from an increase in APD would be small in comparison to a cost increase at Heathrow[47], some relevant information can be drawn from it. For example, this report found that if the APD was increased Heathrow would lose some APD paying passengers (point-to-point) to neighbouring airports but gain connecting passengers (who would backfill the small loss of APD paying passengers).

E92 The findings drawn from the HRMC report gives the CAA further confidence that Heathrow's actual loss in response to a 5 to 10 per cent increase in airport charges is likely to be below the critical loss.

E93 While there are limitations to performing a precise critical loss analysis, there can still be benefits to obtaining a partial indication to be assessed as part of a broader evidence base. As such, a reasonable approach would be to present an illustrative case where the marginal switching was assumed to be performed by airlines that:

- Operated inbound services only, as these have smaller infrastructural switching costs.
- Carried less than 10 per cent connecting passengers, as their services might be sustainable on a point-to-point basis.
- Are not aligned to a particular airline alliance, which would reduce the switching costs related to the presence of strategic partners.

E94 As set out above, the upper case of this estimate, which disregards the third criterion, is an actual loss of 1.9 million passengers per annum. This estimate does, however, assume that airlines not included in this calculation would not switch away at the margin, based on the analysis of their switching costs.

E95 Notwithstanding the limitations of its analysis, the CAA considers that the analysis it has presented can be informative as it is an illustrative case and an additional piece of evidence in assessing the degree of market power held by HAL.

46 HMRC, Modelling the Effects of Price Differentials at UK Airports, 2012.

47 The HMRC report estimates that if APD at Heathrow went up by 10 per cent APD paying passengers would fall by 1.6 per cent; non-APD paying passenger numbers would increase.

Conclusion

E96 Overall, the CAA concludes that switching by Heathrow's marginal airlines is unlikely to be sufficient to constrain HAL's pricing, although the CAA accepts that the evidence is not definitive.

E97 Furthermore, although these marginal airlines might switch away in light of a price increase, the extent to which this would constrain HAL is likely to be considerably affected by back-fill that might materialise from excess demand. Capacity and demand at Heathrow is considered in section 3.5.

Section 3.3: Switching costs

E98 Examining the switching costs and the ability of airlines to switch marginal services (both based and inbound), can be useful in helping to understand the ability of airlines to constrain HAL's pricing and other competitive behaviour.

E99 In this section, the CAA examines switching costs and the ability of airlines to switch marginal aircraft away from Heathrow as well as the practical considerations involved in any exercise of the ability to switch. In particular, this section:

- Highlights the different costs that may be incurred with grounding and/or switching aircraft capacity.
- Summarises the categories of switching costs that an airline may face.
- Explores how switching costs apply to based and inbound airlines.
- Explores the strategic costs that an airline may incur in switching.

E100 However, switching costs alone will not solely determine the level of switching that may occur – other issues, including capacity constraints and the ability of HAL to back-fill any available slots, also play an important role and it is for that reason that some of these are issues are discussed in this appendix.

E101 The categories of switching costs potentially faced by an airline were described in detail in the CC's 2009 BAA airports market investigation. These are summarised in Box E1 below.

Box E1: Summary of the switching costs identified in the CC's 2009 BAA Report

Cost of physical relocation: these are one-off costs incurred when rebasing aircraft, which could include relocating flight crew if the airport to which the aircraft is rebased is a considerable distance from the current airport. There may also be ground staff redundancy or recruitment expenses. If an aircraft is being relocated to an airport where the airline has existing operations, these costs may well be smaller than if it were opening a new base, in which case some additional start-up expenses might be incurred.

Long-term commitments: an airline might have a multi-year contract with an airport operator where the charges it pays are linked to the volume of passengers it carries. An airline could also have long-term arrangements for maintenance facilities at the airport. Full or partial switching of aircraft or services could well break these agreements, and the benefits of these agreements would need to be considered against the offer at an airport to which the airline may switch.

Loss of economies of scale: switching away one or more aircraft from a base could result in the loss of economies of scale at that particular airport as the size of the airline's operations is reduced. However, this switching cost might be offset by the creation of economies of scale at the airport to which the aircraft is (are) being relocated, or may not be significant if the aircraft switching occurs between two or more sizeable bases.

Market effects: these include transitory costs of switching aircraft to substitute airports. Marketing costs can be incurred for new routes, and the lower yields in the first year(s) of a route's operation as the yields reach maturity. These costs could be offset to an extent by the operator of the airport to which the aircraft is (are) relocated offering discounts (or direct marketing support) to new airlines or for the operation of new routes. In addition, these costs may be smaller if the aircraft and routes are moved to airports that are proximate to the original airport, and whose catchment area(s) overlap with it. However, there may be longer-term market effects resulting in lower yields, even on mature routes, which could occur from operating routes from airports whose location is less attractive or where the airline faces more direct competition.

Network effects: network effects can occur at an airport where the number of airlines or routes offered increases the number of passengers choosing to fly from the airport, which in turn can make the airport more attractive to other airlines. Switching away from an airport, in particular to a smaller airport, might result in the airline losing the benefits of these network effects. However, the strength of these effects varies on a case-by-case basis.

Capacity constraints: capacity constraints at other airports that are seen as substitutable by an airport's incumbent airlines can reduce the threat and likelihood of airline switching as airlines might be less able to relocate aircraft in a profitable way and on a sufficient scale to constrain the airport operator. These capacity constraints can occur, for example, from a lack of suitable runway slots, aircraft parking stands capacity, and/or terminal capacity.

Sunk costs: these are irrecoverable costs resulting from an airline's investment in infrastructure and facilities at an airport, either through purchase or leasing. Where the assets are owned by the airline, the initial investment costs might be, to an extent, recoverable through the sale of the assets, thereby reducing the size of the sunk costs.

E102 The different types of switching costs outlined above are also likely to affect airlines operating to and from Heathrow differently according to their business model and the nature of their operations.

Costs of physically relocating marginal services

E103 This section sets out the evidence received by the CAA on the infrastructure costs of airlines at Heathrow that would need to be replicated if they switched away a large part or their entire operations. While these costs can be significant, it is the switching costs for marginal aircraft and services which are important in determining the ability of airlines to switch away in light of a price increase.

E104 In its response to the CC's Statement of Issues for the BAA airports market investigation, BA indicated that its infrastructure costs are quite significant:

Heathrow is the only airport in the South East able to provide hub and spoke infrastructure. For this reason, BA cannot switch its hub and spoke operation to another airport. Moreover, BA has sunk very large investments at Heathrow: to re-provide BA's Heathrow maintenance facilities elsewhere would cost about £1 billion; BA has invested some £800 million in its new world cargo terminal, in bespoke facilities in terminal 5 and in its Heathrow-based corporate headquarters (including its global operations centre) in the last 10 years. It is, and will continue to be a captive customer of BAA at Heathrow in so far as these services are concerned.[48]

E105 BA and VAA, two based airlines at Heathrow, operate their largest bases at Heathrow. They have provided evidence to the CAA regarding the scale of their infrastructure costs at the airport.

E106 Based on evidence from BA, the CAA estimates that the airline incurs approximately [✂].

E107 In 2007, VAA in its response to the CC's questionnaire on the BAA airports market investigation, stated that there were a number of infrastructure costs that it incurs at Heathrow:

[48] BA Statement of Issues Response, October 2007, paragraph 2.3, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2007/airports/pdf/issues_statement_response_ba.pdf

At Heathrow, Virgin Atlantic operates a significant base, which includes maintenance facilities, hangar, flight staff facilities, office accommodation, Upper Class lounge for departures (Clubhouse) and arrivals (Revivals) and a dedicated drive through service.[49]**.**

E108 Depending on the size of their operation, inbound carriers can also have considerable infrastructure at Heathrow, although on a more limited scale. For example, Lufthansa told the CAA that:

LH infrastructure (fixed) costs at LGW and LHR are [✂] *compared to* [✂] *but* [✂] *in comparison with* [✂]*; they including office space and check-in desk rental.*[50]

E109 Aer Lingus told the CAA that it seeks to minimise its infrastructure costs at Heathrow. Specifically, it noted that:

LHR's charges are extremely high and keep increasing at an exponential rate, as well as other costs that it has to contend with such as fixed charges for ground handlers, engineering costs and a CIP lounge. [51]

And:

it tried to minimise its footprint and expense.[52]

E110 The infrastructure costs discussed above would not necessarily be switching costs for relocating or reducing marginal services as opposed to exiting the Heathrow market altogether. Indeed, VAA told the CAA that:

In addition, the operating costs at [Gatwick and Heathrow] would increase (decrease) with the addition (withdrawal) of aircraft.[53]

E111 Similarly, Aer Lingus has indicated:

There is an element of scaling in costs associated with increasing the number of aircraft at an airport, though no step-change in costs.[54]

E112 While there may be costs in scaling down operations for both based and inbound carriers, these are unlikely to be prohibitive. Instead, airlines are likely to face other switching costs when switching away marginal services, as discussed in the remainder of this section.

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49 Source: VAA [✂].

50 Source: Lufthansa [✂].

51 Source: Aer Lingus [✂].

52 Source: Aer Lingus.

53 Source: VAA [✂].

54 Source: Aer Lingus [✂].

Network effects and airlines' strategic partnerships benefits

E113 Airlines at Heathrow tend to operate hub-and-spoke services, either using the airport as their hub or as an airport from which to operate spoke services to their domestic hub(s).

E114 The resulting network of airlines and destinations serving Heathrow means that there are significant network effects at Heathrow. The principal factors creating these network benefits are the connecting passenger flows and the presence of strategic partner airlines.

E115 This section considers connecting passenger flows and the presence of strategic partner airlines to determine how far they could constrain switching by airlines at Heathrow.

Connecting passengers

E116 Generally, connecting passengers can supplement surface passenger demand to increase an airline's load factor. The available connecting passenger feed at an airport can be important to a route's economic viability and profitability.

E117 BA noted that connecting passenger feed increases its network revenue:

> *BA's services at Heathrow generate revenues not only by carrying point to point passengers but also by increasing the number of passengers on other BA routes. That is, BA's Heathrow services give rise to network effects which increase economic efficiency and benefit consumers.*[55]

E118 VAA has also told the CAA that it considers the effect of connecting passenger feed on the profitability of its routes:

> [✂]. *We achieve high load factors by attracting the largest possible combination of:*
>
> - *domestic point-to-point passengers (mixture of business, leisure and VFR);*
> - *domestic connecting passengers;*
> - *international transfer traffic*; *and*

[55] BA, Response to Statement of Issues, October 2007, paragraph 2.4, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2007/airports/pdf/issues_statement_response_ba.pdf.

- *cargo.*[56]

E119 Cathay Pacific, which operates services between Heathrow and its hub in Hong Kong, has told the CAA that it also benefits from connecting passenger feed at Heathrow:

Connecting passengers do contribute to CP's load factors at LHR. Though the destinations of the connecting passengers vary, but as a hub carrier what works for CP at HKG also works at LHR.[57]

E120 Similarly, Emirates, which operates inbound into its Dubai hub, has told the CAA that:

Its operations to London are vital and are built around the connectivity of the "universally recognised" LHR hub.[58]

E121 Figure E.8 (below) lists the twenty airlines that carry the most connecting passengers at Heathrow, accounting for approximately 92 per cent of all connecting passengers at the airport. The importance of connecting passengers to an airline's operations can be seen to vary according to its business model and its alliance membership.

E122 BA, which bases its global hub operations at Heathrow, carries approximately 50 per cent (approximately 14 million) connecting passengers in terms of its total traffic. This represents nearly 60 per cent of Heathrow's approximately 24 million connecting passengers (as at 2011). Furthermore, BA in combination with its oneworld alliance partners carry upwards of 65 per cent of Heathrow's connecting passengers, which reflects the fact that oneworld is the 'home alliance' at Heathrow.

E123 Airlines that are members of the Star Alliance or SkyTeam[59] alliances operate short-haul or long-haul services between Heathrow and their respective home hub airports.[60] Star Alliance (excluding bmi) and SkyTeam respectively carry 11 and 1 per cent of Heathrow's connecting passengers. However, while they represent a small proportion of the connecting passengers at Heathrow, they account for at least 11 per cent of passengers for the airlines in the above table. Unaligned carriers collectively account for approximately 5 per cent of the airport's

56 Source: VAA, [✂].

57 Source: Cathay Pacific [✂].

58 Source: Emirates [✂].

59 SkyTeam is an airline alliance that includes airlines such as Air France, KLM, Alitalia and Delta. Full details of member airlines are available at http://www.skyteam.com/About-us/Our-members/.

60 These airlines would, in general, have a larger proportion of connecting passengers at their respective hubs.

connecting passengers. This suggests that the loss of connecting passengers would be an important switching cost for the majority of based and inbound carriers at Heathrow.

Figure E.8: Top 20 airlines in terms of connecting passengers at Heathrow

Airline	Connecting passengers (000s)	Total Heathrow passengers (000s)	Connectors as a % of airlines traffic	% of Heathrow's connecting passengers	Alliance
British Airways	14,321	28,260	49.6%	60.3%	oneworld
bmi	1,262	2,984	42.3%	5.3%	Star Alliance
American Airlines	832	2,020	41.2%	3.5%	oneworld
Aer Lingus	767	2,197	34.9%	3.2%	Unaligned
VAA	757	3,536	21.4%	3.2%	Unaligned
Air Canada	646	1,475	43.8%	2.7%	Star Alliance
Qantas	438	943	46.5%	1.8%	oneworld
SAS	321	1,502	21.3%	1.3%	Star Alliance
Lufthansa	295	2,483	11.9%	1.2%	Star Alliance
Cathay Pacific	277	885	31.3%	1.2%	oneworld
United Airlines	251	1,248	20.1%	1.1%	Star Alliance
Jet Airways	218	589	37.0%	0.9%	Unaligned
South African Airways	165	396	41.7%	0.7%	Star Alliance
Swiss	160	964	16.6%	0.7%	Star Alliance
Singapore Airlines	159	708	22.4%	0.7%	Star Alliance
Iraqi Airways	156	737	21.1%	0.7%	Unaligned
Emirates	153	1,315	11.6%	0.6%	Unaligned
Air New Zealand	136	365	37.4%	0.6%	Star Alliance
Finnair	133	333	39.8%	0.6%	oneworld
Gulf Air	128	266	48.2%	0.5%	Unaligned

Source: CAA Passenger Survey 2011

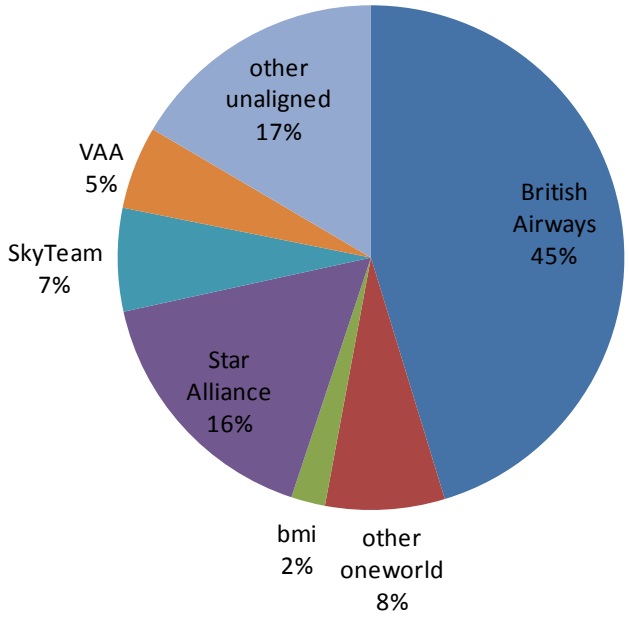
Note: CAA airport statistics include both self-connecting and connecting passengers. These figures may slightly over-estimate the actual proportions of inter- or intra-lining passengers.

The presence of strategic partner airlines

Alliance membership

E124 Alliance membership is an important facilitating factor in taking advantage of network effects, which suggests that moving to an airport with fewer partner airlines would increase an airline's switching costs due to the loss of (at least a degree of) these network effects. Figure E.9 shows the share of total passengers by airline alliance in 2012.

Figure E.9: Share of passengers of airline alliances (2012)



Source: CAA airport statistics 2012

E125 Evidence from airlines also highlights the importance to the connectivity of their services of having alliance partners at Heathrow. For example, in 2007:

- American Airlines, a member of oneworld, told the CC that:

...given the value our customers place on being able to connect to British Airways flights, it is unlikely that we could shift a significant amount of service unless British Airways also moves services....[61]

- United Airlines, a member of Star Alliance, told the CC that:

[61] CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3).

United's alliance partners have extensive operations to/from Heathrow, thereby providing United with greater on-line connectivity and commercial opportunities [than other BAA airports].[62]

E126 While the comment from United Airlines was made when bmi was still part of the Star Alliance, this is still likely to hold – as Figure E.9 shows, Star Alliance still has a 16 per cent passenger share at Heathrow.

E127 Similarly, Lufthansa, a major member of Star Alliance, has highlighted the importance of alliance membership:

Given the Star Alliance presence at LHR and the collective relocation of the alliance into Terminal 2, LH is unlikely to consider switching away from Heathrow.[63]

E128 Delta, a member of SkyTeam, has also told the CAA that:

From a cost perspective, [the SkyTeam alliance] allows it to regroup with its partners more naturally. It can use the SkyTeam lounges at LHR to a much greater extent than it could as an individual carrier. As a result, its customers benefit greatly from the partnership.[64]

Other partnership agreements

E129 Airlines operating at Heathrow also tend to have agreements with partner airlines to take advantage of network effects without, or in addition to, joining an alliance. For example, airlines can sign code sharing, interlining and other similar agreements with other airlines to allow passengers to connect to or fly on their partner airlines' services. Consequently, if an airline reliant on connecting passenger feed were to relocate marginal aircraft or services to an airport from which its partner airlines (or other airlines with similar services with which it could replicate its current agreements[65]) do not operate, it might not have sufficient feeder traffic to make its services viable.

E130 For example:

- Air Malta told the CAA that:

62 CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3).

63 Source: Lufthansa [✂].

64 Source: Delta [✂].

65 The costs involved in doing this are in themselves switching costs.

It is not a member of any major airline alliances but does code share with various airlines. It chooses to do so because it is a smaller player and needs to cooperate with the main alliances and keep its options open.[66]

- Air Canada, a member of Star Alliance, told the CC in 2007 that:

Air Canada has strategic commercial partnerships with several other airlines operating at London Heathrow airport. An eventual move would risk these partnerships which provide mandatory support to Air Canada's traffic.[67]

E131 In addition, one of HAL's internal documents discussed the advantages of the prospective Delta/VAA joint venture:

[✂]*:*

- [✂]
- [✂]
- [✂]
- [✂].[68]

E132 The CAA therefore considers that losing the benefits that these partnership agreements can bring constitute a considerable switching cost for airlines switching marginal services away from Heathrow.

Summary of network and strategic partnership benefits

E133 Overall, the CAA considers that for most airlines there are important network benefits available at Heathrow that are derived from the considerable connecting passenger traffic and the presence of partner airlines. These are likely to generate substantial switching costs. These factors will also typically play an important role in ensuring that the load factors on individual flights reach their required levels to make air services profitable.

E134 In addition, removing marginal services could affect an airline's profitability in three ways:

- the loss of profit from operating the route itself;
- the loss of the route's contribution to the airline's network; and

66 Source: Air Malta [✂].

67 CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3).

68 Source: HAL [✂].

- the loss of profits on routes operated by partner airlines, as it may share in some of their revenue under a code share or interlining agreement.

E135 However, 24 out of 85 airlines at Heathrow (in 2011), carried less than 10 per cent connecting passengers on their services. For these airlines, it is unlikely that the loss of connecting passengers would be a significant switching cost. These airlines accounted for approximately 6.8 million (10 per cent) of the passengers at Heathrow. Of these, airlines accounting for approximately 1.9 million passengers do not belong to an alliance.[69]

Cargo-related switching costs

E136 Heathrow has the largest share of air cargo tonnage in the UK, with 61 per cent of the UK's air cargo tonnage being processed through it. Nearly all (more than 99 per cent) of this is carried in the bellyhold of passenger aircraft. As a result of the concentration of air cargo, and the cargo community around Heathrow, the loss of cargo-related revenue from switching away could be an important switching cost for both based and inbound airlines. For example:

- In 2007, BA told the CC that it had '*invested some £800 million in its new world cargo terminal'* at Heathrow.[70]
- VAA indicated that cargo revenue is a consideration when assessing route profitability (see paragraph E118).
- Delta indicated that: *cargo is critically important to its operations and the expansion into LHR has been good for this part of its business.*[71]
- Air Malta has indicated that:

a *loss in cargo revenue would make its routes less profitable, as it is incremental revenue. This is particularly for LHR, as cargo is more important than at LGW.*

LHR: for example, it transports tuna to Japan and various electronics to Asia through direct connections at LHR. This level of connectivity would not be possible at other airports.[72]

69 CAA passenger survey.

70 BA, Response to Statement of Issues, October 2007, paragraph 2.3.

71 Source: Delta.

72 Source: Air Malta [✂].

E137 Cathay Pacific, an inbound airline, also told the CAA that it operates freighter flights:

It operates 3 freighter aircraft per week LHR and HKG in the winter and 3 per week in the summer. This is due to the sheer volume of cargo but also the nature of some of the cargo.[73]

E138 In addition, Emirates told the CAA that it operates:

A weekly freight flight from Heathrow:[74]

Most freight goes to LHR and very little goes to LGW. There is a difficulty in persuading agents to move to LGW or STN. It noted that this illustrates the way these airports had been positioned by previous [Gatwick] owners (BAA).[75]

When asked whether revenue from bellyhold is an add-on or pivotal to the profitability of its passenger flights, Emirates noted that: '*it is an add-on but it still plays a very important role (especially with new trade routes, for example between China and West Africa)'.*[76]

E139 However, Emirates also noted that: '*if cargo revenue was reduced, its passenger services from London would still be sustainable and profitable'.*

E140 Overall, the CAA considers that carriage of air cargo can be an important source of revenue to passenger airlines at Heathrow. While it may not be a pivotal switching cost – relative to the other switching costs discussed above – when an airline is deciding whether or not to switch away marginal services from an airport, the loss of air cargo revenue can be an incremental switching cost that might influence an airline's decision.

Strategic constraints

E141 In addition to the traditional switching costs tied to operations at Heathrow, airlines at the airport may face strategic switching costs in switching to other London airports or to other non-London UK airports or to airports in continental Europe.

The strategic importance of London

E142 The reasons for the strategic importance of London in airlines' networks vary according to their business model and their historical connection with London. For example, BA and VAA (both FSCs), have a number of

[73] Source: Cathay Pacific [✂].

[74] Source: Emirates [✂].

[75] Source: Emirates [✂].

[76] Source: Emirates [✂].

historical bases in London – BA's three bases are Heathrow, Gatwick and London City[77], while VAA's aircraft are concentrated at Heathrow and Gatwick, with Heathrow being the largest base.

E143 VAA has previously highlighted the importance of London to its operations and has indicated that:

Operating from Heathrow and Gatwick is vital to our operation and business strategy.[78]

E144 Inbound airlines, operating on a based or inbound basis to other European airports, have also made similar statements to the CAA regarding the importance of London. For example:

- Aer Lingus told the CAA that: *London is a very important part of its demand profile and London has many airports.*[79]
- Air Malta told the CAA that: *The UK is its main market and its London routes are its prime routes in its network.*[80]
- Lufthansa told the CAA that: *LHR is one of the most important airports to LH outside of Germany. This is primarily due to the historically strong economic relationship between London and Germany.*[81]

E145 Emirates, which also operate to and from other points in the UK and Europe, similarly noted that its operations to London are vital and that its operations are built around Heathrow. In particular, Emirates noted that:

These [operations] start in London and connect to points throughout the Emirates network including Australia, Asia and India sub-continent. ... London is so appealing because it is where the world wants to travel to and London is a huge magnet for the whole world in terms of retail, culture etc.[82]

E146 Delta, which operates into hubs at Paris CDG, Schiphol, Prague, and Rome also recognise that London was important to its business:

77 Source: BA [✂].

78 Source: VAA [✂].

79 Source: Aer Lingus [✂].

80 Source: Air Malta [✂].

81 Source: Lufthansa [✂].

82 Source: Emirates [✂].

It also services all the other major European business markets but, in terms of volume, London remains the most important market from a transatlantic perspective.[83]

E147 However, Delta also indicated that Heathrow is not at present a great connecting airport to Europe for Delta, only to the US.[84]

E148 Cathay Pacific noted that it serves London for three main reasons that drive route revenue, which in turn is central to profitability:

HKG has links to London in three ways:

a. Flying London-Hong Kong provides a link between two financial centres
b. There are passengers who have family links at either end of the route
c. There is also tourist traffic.[85]

York Aviation / CTAIRA report

E149 To better understand the merit of airline claims on the strategic importance of London, the CAA commissioned York Aviation and CTAIRA, independent aviation consultants, to undertake a study on the strategic importance of London to airlines.[86]

E150 This report found that:

- On a range of economic and related measures that London represents the strongest origin and destination market in Europe.
- London is fundamentally attractive with the potential to deliver high levels of profitability to airlines.

E151 York Aviation and CTAIRA also considered that airlines are likely to face reduced long-term profitability if they are forced to switch marginal capacity (either routes, frequencies or aircraft), away from London.

E152 In coming to this view, York Aviation and CTAIRA noted:

- While no single feature marks London out as unique, it offers a combination of features that would be difficult to replicate elsewhere.
- London is fundamentally attractive for airlines to serve, with its potential to deliver high levels of aggregate profitability.

83 Source: Delta [✂].

84 Source: Delta [✂].

85 Source: Cathay Pacific [✂].

86 York Aviation & CTAIRA, The strategic importance of London to airlines, October 2013.

- It is unlikely that the combination of volume and value that defines the London market can be replicated elsewhere and hence there is the potential for London to be strategically important to airlines.
- In terms of European cities, it had not found any real comparators to London, with the closest comparators being Paris and to some extent Milan.

E153 However, connected to the last bullet point above, York Aviation and CTAIRA identified a second tier of comparators, including Brussels, Frankfurt, Madrid and Munich. The business environment statistics for these cities, summarised in Figure E.10 (below), show that there is a range of factors that contribute to attractiveness:

- London is bigger in population and economic terms than other European cities.
- London is served by a wide variety of airline business models.
- London is more balanced in terms of inbound and outbound flows.;
- London has stronger drivers in terms of value through the size of the business and premium travel markets.
- London is the number one tourist destination in Europe.
- London has a strong point to point demand (52 per cent higher than Paris).

E154 While there are these common factors for serving London, York Aviation and CTAIRA considered that the strategic importance of London to any particular airline is airline specific and dependent on airline type and the domicile of the airline.

E155 York Aviation and CTAIRA found that, for UK airlines based at Heathrow, the strategic position of London is clear-cut. They found that it was highly unlikely that, whatever their operating model, they would be unable to replicate the volume and value characteristics of London elsewhere. London is therefore ultimately of fundamental strategic importance to them and, therefore, airlines such as BA or VAA are unlikely to be able to switch marginal services away from London.

E156 Conversely, for non-UK airlines, York Aviation and CTAIRA found that, while London might be an important and indeed a profitable destination, it is likely to represent only a relatively small part of their business and are more likely to be able to switch aircraft across their networks.

Figure E.10: Macro Environment Indicators

	London	Paris	Milan	Frankfurt	Munich	Madrid	Brussels	Amsterdam
1 - GDP ($ bn)	731.2	669.	289.	226.9	210.3	264.0	245.3	322.3
2 - GDP per capita ($ 000s)	52.0	53.9	37.9	51.6	54.5	40.0	45.6	46.0
3 - Employment (m)	7.9	6.1	3.6	2.5	2.3	3.0	2.4	3.9
4 - Population (m)	14.1	12.4	7.6	4.4	3.9	6.6	5.4	7.0
5 - Fortune Global 500 HQs	17	19	2	4	4	5	3	5
6 - Tourism Arrivals (000s)	15,106	8,40	2,07	1,596	2,135	3,431	2,285	4,202
7 - European Cities Monitor Score	0.84	0.55	0.12	0.32	0.19	0.25	0.25	0.26
8 - Size of Air Transport Market – Passengers (m)	131.4	88.8	36.7	60.3	38.4	45.2	19.0	51.0
9 - Business Passengers (m)	31.5	n/a	n/a	n/a	17.3	n/a	6.1	16.3
10 - Connecting Passengers (m)	28.8	21.3	1.1	31.5	15.0	14.9	3.0	20.9
11 - Point to Point Passengers (m)	102.5	67.5	35.6	28.9	23.4	30.3	16.0	30.1
12 - One Way Premium Class Seats (m)	9.4	6.5	1.9	3.0	1.1	1.9	1.2	3.2
13 - One Way Long Haul Seats (m)	27.0	16.5	1.9	13.2	3.6	5.6	2.1	8.7

Source: York Aviation & CTAIRA, 'The strategic importance of London to airlines', October 2013
Note: 1 to 4 - Brookings Institute MetroMonitor 2012, 5 - Fortune Global 500, 6 - Euromonitor Top City Destinations and City of Frankfurt, 7 - Cushman & Wakefield European Cities Monitor 2011, 8 to 10 Civil Aviation Authorities and Airport Websites, 12 to 13 - OAG.

E157 York Aviation and CTAIRA concluded that within London, Heathrow may offer better access to some of the demand features that make London special, primarily because of the role it plays in Europe as the primary oneworld hub – a position that contrasts with other London airports that do not operate as hubs.

E158 In light of the above, the CAA considers that the strategic importance of operating to and from London is an important issue when evaluating airlines' ability and willingness to switch from London. This is particularly the case for based airlines and for FSCs airlines that constitute all the traffic at Heathrow, as it appears that they would face considerable switching costs in relocating to a non-London UK airport and/or European airport.

The strategic importance of Heathrow

E159 In defining the relevant market (appendix D), the CAA determined that the relevant market was no wider than Heathrow. This suggests that no other London airport is a suitable substitute for Heathrow.

E160 This view is reflected in HAL's own marketing material to airlines that states that Heathrow is the 'strategic choice for airlines', and:

- *Gateway to the UK: 79% of the UK's long-haul scheduled flights operate from Heathrow*
- *Prestige: 79% of Heathrow's airlines are flag carriers, 99% of services are provided by full service carriers*
    - *Highest proportion of flag carriers and services provided by full service carriers at Europe's major hubs*
    - *Just 36% of Gatwick's services are provided by full service carriers*
- *High yields:*
    - *Average fare 2x higher than at other European hubs*
    - *Average fare 3x higher than at Gatwick, yield 30% higher*
    - *Average fare 2x higher than at Manchester, yield nearly 40% higher*
    - *Twice as many passengers travel in a premium cabin compared to other European hubs*
    - *36% of passengers travel on business, 30% VFR and 34% leisure*

- *High loads:*
  - *Long-haul Seat Factor: 81%*
  - *Long-haul passengers/flight: 220*
- *Interline connections:*
  - *30% of passengers transfer to another flight.*[87]

E161 Airlines at Heathrow are also consistent in their view of the strategic importance of the airport to their operations. For example, Air Malta told the CAA that Heathrow is essential to its network:

It cannot see itself leaving LHR because the airport is its main link to the UK and other markets.[88]

And:

LHR would be the last airport it would leave in its network.[89]

E162 BA has also described Heathrow as having the following characteristics:

- *longhaul hub,*
- *transfer feed to balance UK demand and support longhaul frequency,*
- *alliance hub.*[90]

E163 In addition, BA noted that Heathrow is: *'its global hub.*[91]

E164 Cathay Pacific also told the CAA that Heathrow is important to its network for two reasons:

1. [Heathrow] is the hub airport of the UK. CP works with its 'hub partner' BA in the One World Alliance, to allow passengers flying to LHR not only to reach London but also to reach other destinations in the UK and in Europe using its hub partner British Airways. In the UK, LHR is very much the obvious and only place to which to fly due to the proper hub-and-spoke operation at the airport.

2. Although LGW has recently improved, LHR remains the preferred airport for passengers flying out of London. LHR is well-connected into the centre of London. It first started flying to London in the 1980s into

87 Source: HAL [✂].

88 Source: Air Malta [✂].

89 Source: Air Malta.

90 Source: BA [✂].

91 Source: BA [✂].

LGW, but its pax made it clear that they prefer LHR and CP switched when they got the opportunity.

For the two reasons above, LHR and London are synonymous for Cathay Pacific.[92]

E165 Similarly:

- Delta told the CAA that:

Its strategy at LHR is to ensure that it has the right level of coverage into the number one business market across the Atlantic as well as complementing its European business strategy of tapping into major hubs.

LHR is a key part of that strategy; it is trying to create a global footprint and London is the part that was weakest and that is now developing.[93]

- Emirates told the CAA that:

If LHR had always had four runways it would never have needed to look at Gatwick.[94]

- Lufthansa told the CAA that:

London is seen as "the place to be" for LH's customers.

For a great part of LH's customers, London and LHR are synonymous.

LHR's advantages include the convenience of its access links into central London and the rest of the UK (the inter-modality), which is preferred by both business and leisure passengers.[95]

E166 Overall, operating to London appears to be of significant strategic importance to both based and inbound carriers. In particular, the evidence strongly suggests that it is strategically important for airlines to operate to and from Heathrow as it is a unique hub airport in both London and in the UK.

92 Source: Cathay Pacific [✂].

93 Source: Delta [✂].

94 Source: Emirates [✂].

95 Source: Lufthansa [✂].

E167 The CAA also considers that:

- Operating to London is typically of strategic importance to both based and inbound carriers due to a number of factors, including the network benefits and strong passenger demand in London and in inbound carriers' domestic hub airport catchment areas
- There is significant evidence that it is strategically important for airlines to operate to and from Heathrow as it is a unique airport in both London and in the UK. Airline yields are also higher at Heathrow than at most other airports and this premium can represent a switching cost for airlines considering serving London from other airports or exiting London passenger market and switching capacity to other less profitable markets.

Slots switching costs

E168 With the exception of allocating growth to new airports, each type of switching discussed in section 3.1 would involve an airline reducing the number of air traffic movements (ATMs) it operated from an airport. This means that in the event that an airline did reduce frequency it would hold one unused slot pair for each frequency it removed.

E169 According to current European slot regulations[96], a slot series that is used less than 80 per cent of the time would need to be released (though this is unlikely given the considerable monetary value attached to each slot pair), sold or leased to another airline on the secondary slot market.[97]

E170 In addition, Heathrow has historically been and is currently subject to capacity constraints to the point where, according to the Summer 2013 ACL start of season report, there is on average 7 per cent excess demand for slots at the airport across the 'peak week'.[98]

96 These regulations are currently subject to review by the European Commission. More information is available at http://ec.europa.eu/transport/modes/air/airports/slots_en.htm.

97 In cases where the airline was leasing the slot pair, it would be returned to the lessor.

98 This is the week selected by ACL as it is typically the busiest week in the traffic season. As this is stated demand, it is also likely to be an underestimate as airlines are unlikely to request Heathrow slots if they know there are none or very few available. The report is available at: http://www.acl-uk.org/UserFiles/File/LHR%20S13%20Start%20of%20Season%20report.pdf.

Selling slots

E171 Since demand for slots exceeds supply, slot trading is necessary for airlines to enter or grow their operations at Heathrow. Once an airline gains grandfather rights[99] on a slot, the airline can trade the slot (sell or lease) to another airline.

E172 In an efficient secondary slot market, the sale price for slots would reflect the full economic value – including opportunity cost[100] – of the slot pair. The existence of a secondary slot market would therefore suggest that the value of slots should not, in theory, constitute a sunk cost.

E173 However, airlines might perceive slot pairs as assets and the illiquidity of the secondary slot market might dissuade airlines from selling their slot pair(s), as it might be difficult to acquire slots to re-enter at a future date.

E174 In its BAA airports market investigation, the CC highlighted the level of liquidity in the secondary market at Heathrow:

The secondary market is in our view illiquid, as illustrated by a large apparent increase in Heathrow secondary market values of transatlantic slots occurring when demand for such slots increased following the Open Skies agreement (which enabled additional airlines to operate transatlantic services from Heathrow). The need to acquire slots on the illiquid secondary market may make it difficult for airlines to acquire a suitable portfolio of slots at another airport matching that which the airline already has at its existing airport and hence difficult to switch services between the two airports.[101]

E175 The illiquidity of this market has also been noted by Delta, who told the CAA that:

Slots come on the market very rarely at LHR and when they do they are expensive. Therefore, without its joint venture partner, it would not have been able to come in at the level it currently operates – without the VAA transaction it would not be able to expand at LHR

And:

99 Grandfather rights allow an existing user of a slot to continue using it. The current allocation of most slots is based on grandfather rights. If an airline loses grandfather rights on slots because it did not use them, it would need to acquire slots again, on the slot secondary market, subject to them being available for sale.

100 This would include the expected discounted future profits from operating from Heathrow.

101 CC, BAA Investigation, Annex 3.1, Cost to airlines of switching airports, paragraph 29.

The benefits of operating at LHR, outweighs the cost of purchasing these slots and other business opportunities from other airports.[102]

E176 The illiquidity in this market is likely to be due in large part to the strategic incentives faced by an incumbent airline to retain a slot pair or to restrict its resale or lease to strategic partners. This suggests that airlines, particularly unaligned airlines, perceive the sale of a slot pair at Heathrow to be an irreversible decision. In addition, while an airline may be able to realise the economic value of the slot in its resale value, the high re-entry slot purchase costs (at least equal to the value of the sale for a similarly timed slot), coupled with the illiquidity of the secondary market (i.e. the uncertainty of future acquisition) create a substantial switching cost.[103]

E177 Given that slot prices at Heathrow have not fallen over time, an airline's investment in a slot pair (as an entry cost) would be recovered from the proceeds of its resale. As such, the CAA does not consider that the slot value should be considered a sunk cost.[104]

Leasing slots

E178 Leasing the slots to a strategic partner (or other airline) could significantly reduce the costs of reducing services from Heathrow, as the lessor airline would retain grandfather rights.[105] The leasing of slots between two airlines typically involves a slot transfer accompanied by a commercial contract between the lessor and lessee. This allows the lessor to reduce its services to whatever extent it requires – ranging from ceasing to operate one slot pair to ending its entire operation to and from Heathrow – over a stipulated period. For example, an airline might stop serving Heathrow by leasing its entire slot portfolio to another airline, and recommencing flights at the expiry of the lease period.

Slot values as a switching incentive

E179 The ability to sell, and lease slots to other airlines while retaining grandfather rights, can significantly reduce switching costs for airlines to switch away marginal services. However, if switching costs are lowered because slots are purchased or leased by other airlines, (that can arguably make a better use of the slots than the switching airline) the

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102 Source: Delta [✂].

103 Related to this is the necessity to maximise aircraft utilisation: if a slot pair is relinquished, the aircraft that would have operated it would need to be redeployed. The network planning implications of this can be a considerable cost.

104 Indeed, an airline selling a slot it acquired 20 years ago is likely to make a significant profit.

105 Assuming the lessee operates the slots at least 80 per cent of the time, as otherwise the lessor would still lose its grandfather rights.

airport operator is unlikely to be constrained by the exit because, for every airline exit, another airline entry would invariably follow.

Stakeholders' views

E180 HAL, in its response to the Consultation, considered that the CAA overstated the importance of switching costs. In particular HAL:

- Considered that if airlines were to switch routes to alternative hubs that also have high connecting traffic, it may be possible that some network benefits can be retained. [106]
- Noted that the illiquidity of the slot market is unlikely to be a serious concern, primarily due to slot trading and leasing. HAL also noted that any premium due to slot scarcity would be built in to the sale price.[107]

CAA views

E181 The CAA agrees with the point made by HAL that switching to other hubs (rather than other UK airports), may allow some airlines to retain connectivity benefits. As described in the 'Strategic importance of London' study[108], the number of other hubs with the same level of connecting traffic and strength of surface demand as London in Europe is very small. However, looking at connectivity alone, network switching costs are more likely to affect based airlines at Heathrow and strategic partners of airlines with a large presence at Heathrow relative to alternative European hub airports.

E182 The CAA has examined the issue of slot-related switching costs and considers that the sale price can reflect the risks and opportunity costs associated with slot scarcity at Heathrow. In addition, leasing could considerably reduce switching costs for airlines switching marginal services.

E183 However, arguing that switching costs may be reduced by airlines cashing-in on slot prices weakens the switching cost arguments but strengthens the argument that Heathrow is likely to benefit from back fill (new entry) following an airline exit.

Conclusion on switching costs

E184 This section has analysed the different types of switching costs that airlines may face at Heathrow when switching away marginal services.

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106 HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraph 2.3.7.

107 HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraph 2.3.10.

108 York Aviation & CTAIRA, 'The strategic importance of London to airlines', October 2013.

E185 The evidence suggests that the cost of replicating airlines' infrastructure currently at Heathrow at another airport would not necessarily be a switching cost for relocating or reducing marginal services if an airline had other bases. While there may be costs in scaling down operations for both based and inbound carriers, these are unlikely to be sufficient to prevent airlines from reducing the number of aircraft at the margin. Instead, airlines are likely to face other switching costs.

E186 In particular, the network benefits derived from connecting passenger feed and the presence of strategic partner airlines at Heathrow cannot be found by airlines at other London or UK airports. This means that switching costs can be particularly high for partner airlines of BA, the home hub carrier, although airlines in other alliances or unaligned carriers might face a slightly lower but still significant switching cost from the loss of network benefits. That said, a small number of airlines with little connecting traffic and few partner airlines might be more able to switch away.

E187 The potential loss of cargo revenue may also be an incremental switching cost for certain airlines, as the feed of cargo at Heathrow is the largest in the UK, due to the concentration of the air cargo community around Heathrow. In addition, airlines are likely to have sunk costs from marketing and other related costs from promoting its services.

E188 In addition to traditional switching costs, airlines at Heathrow have also told the CAA that operating to and from London, and Heathrow in particular, is of strategic importance to their business model and that their profitability would fall if they switched away from Heathrow.

E189 While the secondary slot market and tightening capacity constraints may mean that the cost of slot acquisition can be recovered, the illiquidity of this market may in some cases constitute a switching cost.

E190 However, the ability to sell and lease slots to other airlines can significantly reduce switching costs for airlines to switch away marginal services. That said, even if switching costs are lowered as slots are purchased (or leased) by other airlines (that can arguably make a better use of the slots than the switching airline), the airport operator is unlikely to be constrained by the exit as for every airline that exits another airline may enter.

Section 3.4: Countervailing buyer power

E191 In this section, the ability of airlines to constrain HAL's market power by leveraging the importance of its operations to HAL during negotiations, by credibly threatening to switch away a substantial volume of their services is considered.

Assessing the level of countervailing buyer power

E192 As stated in OFT guidance,[109] countervailing buyer power is most commonly found in industries where buyers and suppliers negotiate, in which case buyer power can be thought of as the degree of bargaining strength in negotiations. Furthermore, this guidance states that size is not sufficient for buyer power to exist. Buyer power requires the buyer to have choice.

E193 This means that, to have a degree of buyer power, an airline would typically need to be a significant proportion of a particular airport operator's business and have a number of substitute airports which it could credibly switch to in response to an airport operator's behaviour. An airline would also need to be well informed about alternative sources of supply and be able to, at little cost to itself, switch substantial business from one airport to another while continuing to meet its needs (or sponsor new entry through an alternative supplier relatively quickly without incurring substantial sunk costs).[110]

E194 An overarching point to the assessment of competitive constraints from airlines and consequently the discussion of countervailing buyer power is the fact that Heathrow faces excess demand for its slot capacity and can easily backfill any available capacity. This means that airlines switching marginal services or aircraft away from Heathrow are likely to be replaced with airlines waiting for the opportunity to expand or begin operations at it.

Airlines and airport operator relative importance

E195 In 2011, of the ten largest airlines at Heathrow (in terms of total passengers), only two airlines accounted for 5 per cent or more of the total passengers at Heathrow, with BA (42 per cent) having a substantially larger share than VAA (5 per cent). This is visible in Figure E.11 (below).

[109] OFT, Assessment of market power guidelines (OFT 415).

[110] OFT 415, paragraph 6.2.

Figure E.11: Top 10 airlines: Relative importance of airline and airport operations, 2011[111]

Airline Name	% of Heathrow's total passengers	% of total airline passengers
BA	42%	77%
VAA	5%	66%
Lufthansa	4%	4%
American Airlines	3%	3%
Aer Lingus	3%	22%
Air Canada	2%	4%
SAS	2%	6%
Emirates	2%	4%
United Airlines	2%	1%
Delta	2%	1%

Sources: CAA passenger survey and airline websites

E196 However, Heathrow passengers account for nearly 80 per cent of BA's total passengers, 66 per cent of VAA's total and 22 per cent of Aer Lingus' passengers across their respective networks. This suggests that Heathrow tends to be more important to the airlines than the airlines are to HAL.

E197 In addition, BA accounts for a large share (42 per cent) of the passengers at Heathrow. This share rises to 53 per cent for the oneworld alliance, for which BA is the domestic hub carrier.

E198 HAL, in its response to the Initial Views, argued that:

in light of the CAA's data on based network carriers and airline concentration and their share of traffic/ATMs at Heathrow, there is clearly a degree of mutual reliance.[112]

E199 However, the CAA does not consider that these airline shares of traffic are sufficient for airlines to be able to have countervailing buyer power. For example:

- Based on the available evidence, particularly the evidence on switching costs, BA would not have a realistic choice of substitute airports to threaten to switch away a substantial amount of its based aircraft.

111 BA total excludes bmi.

112 HAL, Response to Initial Views, p. 17.

- Airlines with smaller shares of passengers might have a choice of alternative airports to threaten to switch away to. That said, the constraint on HAL of an individual airline switching its marginal operations is not generally – with the notable exception of BA – likely to be significant. The main reasons for this are that individual airlines usually have small shares of total traffic and that backfill would be likely to mitigate the impact of airline switching.

E200 HAL has also indicated that, in addition to airline volume shares, the differences in revenue per passenger is a relevant metric in assessing countervailing buyer power. In particular, it indicated that:

...the CAA might also consider the relative revenues/incomes as an appropriate measure.[113]

E201 As discussed in appendix F, evidence received from airlines at Heathrow suggests that airlines pay the tariff rate of aeronautical charges and the scope for any genuine negotiation on airport charges is extremely limited. The CAA does not believe that there is genuine negotiation between HAL and airlines with respect to aeronautical charges and it has seen no evidence of that. On this basis, there would not appear to be any negotiations during which an airline could potentially exert any countervailing buyer power.

E202 Although BA has the largest share of passengers, it might not be in a position to credibly threaten to switch away and HAL may be in a position to compensate for the decrease in BA's operations with an increase in passengers from an airline giving a greater revenue per passenger.[114]

E203 Excess demand, coupled with the factors discussed above, means that it is highly unlikely that any airline at Heathrow has the ability to constrain HAL's pricing or behaviour through threatening to switch away marginal services.

Airlines' statements on demand responsiveness

E204 The CAA, as part of its industry engagement, also asked airlines about their potential response to a 10 per cent price increase. The vast majority of respondents said that they would absorb the higher charge or pass it on to passengers in fares but would not consider reducing their ATMs or switching aircraft to another airport.

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[113] HAL, Response to Initial Views, p. 18.

[114] At a minimum, the revenue per passenger from the airline filling the gap left by BA's operations would need to mitigate sufficiently the loss of BA passengers to the point where a price increase is not constrained. The backfill from excess demand would be an additional mitigating factor of the impact on HAL's profits from an airline exercising a degree of countervailing buyer power.

E205 Examples of these views are outlined below:

- BA (with respect to its Gatwick operations), told the CAA that: *Over the last 10 years, it should have increased its prices by* [✂] *to cover price increases, but managed to have an increase of only* [✂]*, as the market would have not supported higher fare increases.*[115]
- BA (in 2007), also told the CC that: *In summary, some of the hypothetical increase in airport charges at Heathrow would probably be passed on to [long haul] passengers in terms of higher prices. This applies in particular to point to point passengers.*[116]
- Cathay Pacific said that it would have to pass on increases in airport charges:

  It lost money in first half year, so absorbing costs isn't feasible.[117]

  It must be able to pass on the cost of production (i.e. of operating a seat) to the passenger, with enough revenue left to derive a profit.[118]
- Air Malta said that: *It would probably have to take it into account in its pricing.*[119]

  Delta indicated: *If you [the CAA] are asking whether we would move to LGW or STN if LHR overcharged us, the answer is no. We do not have negotiating powers with LHR, we have to pay what they ask and we have to be at LHR to capture our key business sector.*[120]
- Aer Lingus told the CAA that HAL has increased prices over the past 5 years. Specifically, it noted that:

  In any open marketing environment, no organisation could sustain a year-on-year increase in charges like LHR's ([✂]*). All of these recent annual increases are all unsustainable in an open market environment.*

  The source or origin is that the lack of an open market is exploited by the increase in LHR's charges which has been forced on to the travelling public and other airport users like airlines.[121]

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115 Source: BA [✂].

116 CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3), p. 53.

117 Source: Cathay Pacific [✂].

118 Source: Cathay Pacific [✂].

119 Source: Air Malta [✂].

120 Source: Delta [✂].

121 Source: Aer Lingus [✂].

And that:

The fact that it has had to downsize aircraft (A321 to A319s) as it is transporting few pax per slots is evidence that something is broken. LHR's inability to curtail these costs is a contributing factor, as this has increased significantly Aer Lingus' cost base at LHR.[122]

- Emirates told the CAA that: *In regards to pricing, it noted that although charges have increased year on year, it hadn't left LHR and had grown its operation. However, it did note that LHR's pricing was high and always up to the cap.*[123]
- Lufthansa told the CAA that: *LH fare pricing is not directly based on the costs it faces. Rather, it is based on the prices the market will bear. This means that airlines tend to absorb cost increases, until the market level prices increases.*[124]
- Air Canada (in 2007), told the CC that: *Even a 10 per cent increase in airport charges at London Heathrow airport would be considerable enough to have a significant impact on the profit performance of our operations, either directly as the increase is absorbed by Air Canada, or indirectly as the increase is passed on to consumers and reduces demand.*[125]

E206 Taking the evidence presented in this section together with the statements by airlines, the CAA considers that it clearly confirms that airlines are highly unlikely to have countervailing buyer power to constrain HAL's pricing or behaviour.

Stakeholders' views

E207 HAL considered that the CAA had underestimated the degree of countervailing buyer power held by airlines at Heathrow. In particular, it suggested in considering that while BA has a 45 per cent share but a lack of alternative airports to which it could viably switch, the CAA has underestimated the potential effect on HAL of BA moving some of its operations away from Heathrow. HAL noted that the CAA has not considered HAL's lack of substitute airline to replace BA's substantial passenger volumes if it were to switch away.[126]

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122 Source: Aer Lingus [✂].

123 Source: Emirates [✂].

124 Source: Lufthansa [✂].

125 CC, BAA Investigation, Annex 3.5, Airline responses on substitutes for BAA London airports and price reductions at these airports (Annex 3), p. 50.

126 HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraphs 2.3.13 to 2.3.15.

CAA views

E208 To exercise countervailing buyer power, an airline needs to be able to credibly threaten to switch away a substantial proportion of its operation. For such switching to be an effective constraint, an airline would need to have one or more credible substitutes to which it could switch and be a sufficient large part of the airport operator's business.

E209 While HAL might find it difficult to replace the volume vacated by BA, this is not sufficient to confer countervailing buyer power on the airline, although it is a necessary condition. BA would also need to have one or more suitable alternative airports to which to switch in order to exercise a constraint. The evidence strongly suggests that this is not the case. This position is further supported by evidence outlined in the section on capacity constraints and demand growth (below) and in appendix D.

E210 The CAA has also not identified any significant examples of airlines moving their hub operations in response to airport charge increases that would suggest that BA could be in a position to exercise countervailing buyer power. In addition, the CAA has not seen any evidence to change the position it outlined in the Consultation that airlines at Heathrow cannot exercise countervailing buyer power against HAL.

Conclusion on countervailing buyer power

E211 Except for BA and VAA, no other airline accounts for over 5 per cent of the passenger traffic at Heathrow. The revenue per passenger is also relatively similar across airlines. Conversely, the traffic at Heathrow represents a considerable share of traffic for a small number of airlines (BA, VAA and Aer Lingus). For most of the other airlines, the airport represents a relatively small share of their total passenger traffic.

E212 The market shares outlined above suggests that some airlines could have buyer power. However, given the considerable strategic importance of operating from London and Heathrow, as well as the significant network effects at Heathrow, mean that these airlines are unlikely to have suitable alternatives to switch away. For this reason, even though airport capacity at other London airports is not as constrained as at Heathrow, the CAA considers that the demand for HAL’s services is substantially reliant on Heathrow’s characteristics not present at other London airports. As a result, airlines at Heathrow are unlikely to be willing to substitute Heathrow for other London airports in a substantial way.

E213 Given the excess demand for slots at Heathrow, any released slots by airline marginal switching are likely to backfilled by airlines waiting to enter or expand operations.

E214 In addition, HAL does not appear to offer discounts on airport charges. This, coupled with the statements by the airlines that they need to absorb (or in some cases pass on) any cost increases, also suggests that airlines are highly unlikely to have countervailing buyer power to be able to constrain HAL by credibly threatening to switch away from the airport.

Section 3.5: Capacity constraints and demand growth

E215 As explained in the Guidelines, market shares alone cannot indicate the dynamic competitive pressure exerted by existing competitors to expand their services or that by potential competitors to enter the relevant market.[127] Barriers to expansion or entry are an important part of any market power analysis.[128] In the UK, there are legal barriers to airport expansion in the form of Government planning and policy regarding airport development, economic barriers in the form of sunk costs and economies of scale and scarcity of capacity in the form of limited runway slots and terminal facilities.

E216 This section considers how the scarcity of spare capacity at Heathrow and/or at other airports can affect actual and/or potential competition between airports, in the form of new entry or expansion. Capacity constraints at substitute airports can significantly affect the scope that airlines have in switching away from an airport. Capacity constraints at an airport can also affect the incentives and ability of an airport (such as Heathrow) to attract airline passenger growth, either from incumbent or new entrant airlines.

E217 Based on the relevant market (appendix D) and airline switching costs (see earlier discussion), the CAA considers that airlines have very limited scope to switch away from Heathrow in light of a SSNIP.

E218 As noted earlier, Heathrow is the only hub airport in the UK and in 2011, 69.4 million passengers travelled through it, amounting to 476,295 ATMs, which is close to its movement cap of 480,000. This translates to a rate of around 99 per cent runway utilisation.[129]

E219 Heathrow is therefore effectively operating at capacity, which at current (regulated) prices results in a situation of excess demand for slots at the airport. Figure E.12 (below) illustrates the demand for arrival and

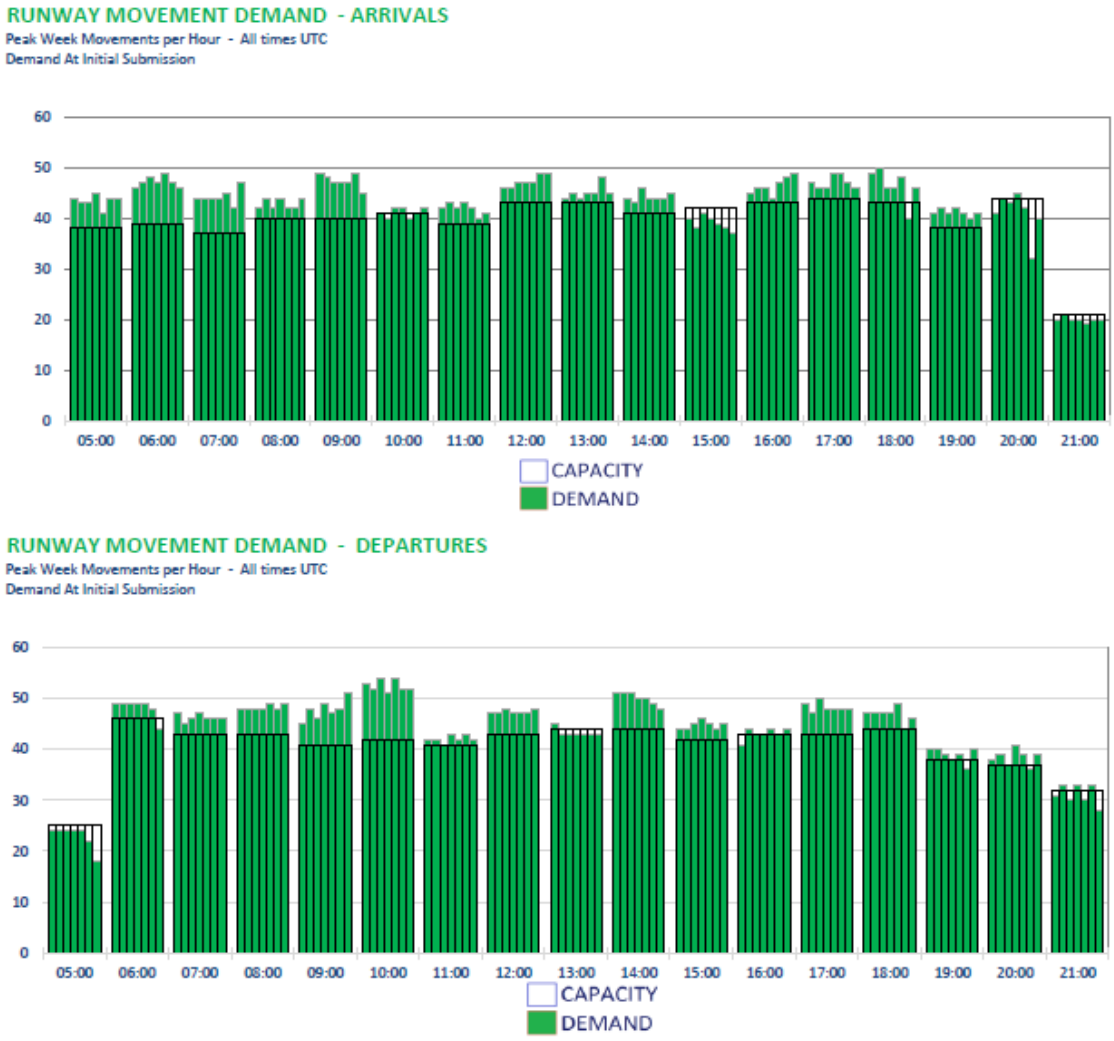
[127] The Guidelines, paragraphs 4.3 to 4.5.

[128] The Guidelines, paragraphs 5.1 to 5.12.

[129] This movement cap is unlikely to be lifted in the short to medium term, in particular because mixed mode operations are prohibited. Mixed mode operation of the runways would allow both runways to be used simultaneously for a mix of arrivals and departures, increasing their capacity. In 2012 the number of ATMs fell to 471,382.

departure slots relative to the declared capacity limits. A similar pattern of excess demand also exists in the winter traffic seasons.

Figure E.12: Slot demand at Heathrow, Summer 2013



Source: ACL Start of Season report 2013

E220 Both these figures show that there is excess demand for slots at Heathrow, for either (or both) arrivals and departures, during nearly all of the day. Taking together arrival and departure slot demand over the sample week, there is on average 107 per cent demand. However, demand for a particular hour can exceed capacity by as much as 25 per cent.[130]

[130] Where demand can be accommodated for arrivals (departures) but not departures (arrivals), this is likely to reflect that a certain hour on a given day is more appropriately timed for one kind of airline operation. For example, airlines require slots in the hour of 05:00 and 05:59 UTC more often for early morning arrivals than departures.

Barriers to entry and expansion

E221 The Guidelines note that barriers to entry in airport markets are particularly high and that expansion of existing airports is more likely to represent a competitive constraint on existing airports than the threat of entry by an entirely new airport. New airports can sometimes enter the market, but the investment and lead times involved in new entry are likely to significantly limit the impact of this form of competitive constraint.[131]

E222 Expansion and/or entry by existing aerodromes, and/or the threat thereof, may represent a source of competitive constraint. However, as in the case of a new airport, the cost and timescales involved in expanding to accommodate sufficient switching may still be too great to constrain HAL's prices in the short to medium term.

E223 One way to understand the nature of barriers to entry and expansion is to consider the history of entry and expansion in the market. There is very limited evidence of significant entry or expansion in the relevant markets. However, there are two recent examples of expansion in the form of Southend and the recent announcement of London Luton Airport Operations Limited's intention to increase capacity at Luton:

- In April 2012, easyJet opened based operations at Southend. Although Southend airport constitutes entry on a relatively small scale and does not compete with Heathrow, the airport operator currently has plans to expand to handle 2 million passengers by 2020.[132]
- London Luton Airport Operations Limited's Masterplan for Luton sets out a plan to increase capacity at the airport from 10.3 mppa in 2013, to 12.1 mppa by 2019 and to 18 mppa by 2030.[133]

E224 The Government has put a hold on the expansion of the London airports and that the Airports Commission is not expected to bring out an interim report until the end of 2013, with a full report in summer 2015. In addition, any change in government policy following the release of the Airports Commission final report is likely to take some time to be implemented and that any significant capacity expansion is not expected until at least 2025, outside the timeframe that the CAA is considering as part of this market power assessment.

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131 For example, Robin Hood Doncaster Sheffield airport opened in April 2005, and London City Airport opened in 1988.

132 Source: Southend [✂].

133 For more information see: http://www.london-luton.co.uk/en/content/8/1171/Masterplan.html.

Demand forecasts and future capacity constraints

E225 The way in which capacity constraints at London airports are expected to evolve in the short to medium term has implications for the dynamic assessment of the market power of HAL. Therefore, the CAA has considered DfT's 2012 Aviation Demand Forecasts to assess whether or not the demand outlook is likely to increase capacity constraints in London. These forecasts state that:

In the central forecast, the five largest South East airports are forecast to be full by 2030. However, the high and low demand scenarios underline the uncertainty around this conclusion. With the range of demand used they could be full as soon as 2025 (the high case) or take until 2040 (the low case). Heathrow had effectively reached capacity in 2011 and it is forecast to remain at capacity in all scenarios. In the high and central demand cases, a number of other airports are expected to reach capacity over the forecast period including Birmingham, Bristol, East Midlands and Manchester.[134]

E226 DfT's constrained forecasts are, however, based on a number of assumptions, including:

- No new runways are built in the UK. The CAA considers this to be reasonable for forecasts at least up to 2020, as the Airports Commission is scheduled to report in 2015 and there would a lag in capacity becoming available following this decision.
- Schemes already in the planning system and airport masterplans are implemented by 2020.
- Incremental growth to full potential long-term capacity by 2030 taking into account the airport operators' own longer term plans, physical site constraints and up to 13 per cent capacity gain (where possible) through operational and technological improvements.
- Terminal capacity increased incrementally to service additional runway capacity.
- No changes after 2030.

E227 Based on those assumptions, DfT's forecasts confirm that Heathrow is already effectively full. The forecasts also estimate that Gatwick, which is already capacity constrained during some periods of the day, will reach

[134] DfT, Aviation Forecasts 2012, p. 8, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/70259/aviation-forecasts.pdf.

100 per cent utilisation by 2020, and London airports overall will have 86 per cent utilisation.[135] This is illustrated in Figure E.13 below.

Figure E.13: UK airports runway capacity used, 2010-2050, 'max use' capacity scenario (central forecast)

Airport	2010	2020	2030	2040	2050
Heathrow	99%	100%	100%	100%	100%
Gatwick	90%	100%	100%	100%	100%
Stansted	58%	69%	100%	100%	100%
Luton	59%	60%	100%	100%	100%
London City	56%	87%	100%	100%	100%
Southend	--	42%	100%	100%	100%
London	**81%**	**86%**	**100%**	**100%**	**100%**
Manchester	49%	57%	55%	58%	100%
Birmingham	45%	56%	79%	100%	100%
Bristol	35%	38%	37%	100%	100%
East Midlands	22%	17%	20%	43%	100%
Southampton	27%	36%	52%	100%	100%
Other Modelled	**22%**	**24%**	**28%**	**33%**	**43%**
National	**39%**	**43%**	**50%**	**54%**	**63%**

Source: DfT Aviation Forecasts 2012 (Table 5.7)

Note: 100% = runway or terminal capacity exceeded, other %s refer to runway usage. Mainland UK airports only.

E228 In addition, the analysis suggests that GAL (and STAL) may benefit from spill of international destinations from Heathrow up to 2030 – see Figure E.14 (below).

[135] DfT's 2012 constrained forecasts are lower that the forecasts that it produced in 2011. However, the evidence clearly suggests that capacity constraints will tighten in the short to medium term up to at least 2020, as no new runway capacity is currently expected before that date.

Figure E.14: DfT's projected aircraft spill to Gatwick (and Stansted). Modelled international destinations served at selected UK airports, central demand.

Airport	2011*	2030	2050
Heathrow	135	136	121
Gatwick	79	86	83
Stansted	56	74	68
Luton	26	42	31
London City	17	22	14
Southend	0	5	4
London**	**178**	**212**	**230**
Manchester	40	65	105
Birmingham	21	40	67
Glasgow	6	6	12
Edinburgh	11	20	31
Newcastle	6	8	17
Belfast International	1	9	16
Bristol	13	28	41
Liverpool	15	23	35
East Midlands	7	9	54
Other Modelled	**22**	**49**	**79**
Total**	**178**	**215**	**242**

Source: DfT Aviation Forecasts 2012 (Table 5.8)

Notes: * 2011 is modelled. Modelled numbers will vary slightly from observed patterns because they represent a full year of operation: observed data will include seasonal services and new start-ups or routes withdrawn during the course of the year. ** total different destinations available, not sum of individual airport destinations

Stakeholders' views

E229 In response to the Consultation, HAL noted that the existence of capacity constraints should not rule out the possibility that marginal capacity might be available. HAL also noted that:[136]

- Airports do not serve a static stock of customers even in the face of capacity constraints. Rather, airports gain and lose capacity on the margin as the mix and demands of airlines and passengers evolve over time. As part of this, HAL noted that there were differences in the mix of revenue per passenger realised from different airlines.
- The CAA's analysis failed to consider the competitive constraint posed by the potential churn and changes in the mix of airlines on the margin, even under capacity constraints.
- The CAA appears to underestimate the substantial opportunity cost to Heathrow if growth did not materialise, resulting in reductions in load factors or aircraft sizes on existing routes.

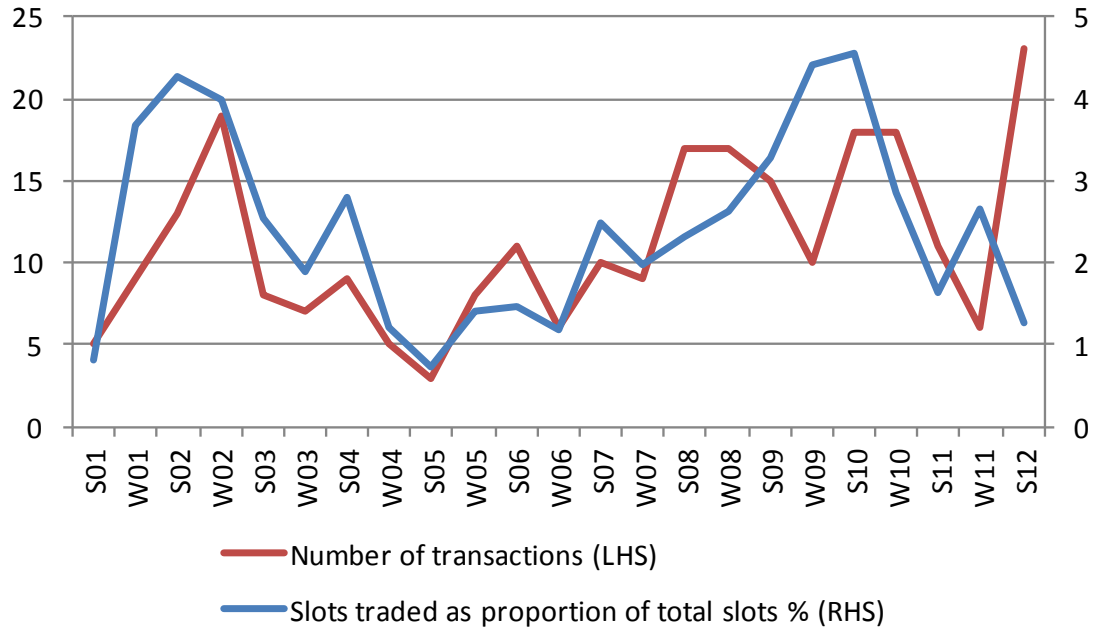
CAA views

E230 There is a degree of regular airline and service churn at most airports, including those which face binding capacity constraints. However, churn is not a competitive constraint; it merely indicates that the demand for a good or service from one source is replaced with that from another source. In addition, it is not necessary for a business to retain the same customers over time to hold SMP.

E231 The CAA has calculated the degree of slot churn at Heathrow, using the same data that HAL presents in its response. This analysis shows that the number of slots traded as a proportion of slots at Heathrow has been, on average, 2 per cent of the total slots (approximately 190 of 9,500 weekly slots) in a particular traffic season between summer 2001 and summer 2012. This is shown in Figure E.15 below.

[136] HAL, Response to CAA's Market Power Assessment, 26 July 2013, paragraphs 2.3.16 to 2.3.20.

Figure E.15: Slot trading at Heathrow



Source: CAA analysis of slottrade.aero data

E232 The CAA recognises that HAL faces a potential risk to its revenue levels to the extent that Heathrow experiences a degree of slot churn. However, the percentage of slot trades is quite low, being around 3 per cent over the period outlined above.

E233 Furthermore, the data that is available does not distinguish between the different types of slot transaction, as recorded by slottrade.aero. For example, ACL has told the CAA that:

Trading/leasing/"babysitting" of slots are all regarded as a slot "Exchange" between two airlines, covered by an underlying contract to which ACL is not party.[137]

E234 The information on slot trading also does not distinguish between those slots that are transferred within alliances and between other strategic partners for both operational and strategic reasons and those that are traded to a new entrant or expanding airline upon another airline's exit or contraction.

E235 Slot trading between airlines of similar business models is, however, likely to mitigate potential losses of revenue per passenger for HAL, though there could be a positive or negative impact. The degree of excess slot demand at Heathrow is also likely to mitigate any potential revenue loss for HAL through slot churn at the margin.

[137] Source: ACL.

E236 As set out in Figure E.15 (above), there is excess demand for arrival and departure slots at Heathrow, nearly for every hour of each day of the week. There is an average slot demand of 107 per cent. As the degree of slot churn per traffic season has historically been between 1 and 4 per cent between 2001 and 2012, the CAA considers that the slot trades resulting from exit or contraction of an airline's operations are likely to result in corresponding entry or expansion from another airline. Furthermore, the very high value of slots at Heathrow means that airlines are likely to have a strong incentive to maximise slot utilisation, which reduces, in this way, the volume risk faced by HAL.

E237 Given the current market conditions, that include excess demand for slots, and no prospect of new capacity at the airport until 2025 at the earliest, the CAA considers that the potential opportunity cost that HAL may face if growth did not materialise is unlikely to be significant.

Conclusion

E238 Overall, capacity constraints at Heathrow are likely to increase up to at least 2020, and probably beyond. As the only hub airport in the UK, the competitive constraints faced by HAL from London or other UK airports are unlikely to strengthen, and could in fact weaken, in the short to medium term.

E239 In the event that competitive constraints faced by HAL weaken, HAL would have even greater pricing power towards airlines seeking to operate from a hub airport to serve London and the UK. In addition, it is unclear, after the excess demand is accommodated following any capacity expansion, whether there would remain sufficient spare capacity at Heathrow to significantly affect the airport operator's market position.

Section 4: Conclusion on competitive constraints

E240 This section brings the evidence on the constraints on HAL together and considers their cumulative effect. The evidence in this appendix suggests that the competitive constraint from all sources is sufficient to suggest that HAL has SMP and that this is likely to be maintained over Q6. However, the CAA's overall assessment of SMP, presented in chapter 5 of the Statement of Reasons, draws on the evidence in this and other appendices.

E241 This appendix has analysed the type and size of competitive constraints that HAL might face from airlines at Heathrow switching away to make a 5 to 10 per cent price increase unprofitable for HAL.

E242 Following a consideration of the different potential types of switching, the CAA considers that airlines at Heathrow are most likely to be able to switch away from Heathrow by reducing frequencies, particularly by those by airlines that benefit the least from Heathrow's connecting flows. The other means of switching are less likely to occur in response to a 5 to 10 per cent airport charge increase, leading to these representing a relatively weak constraint on HAL.

E243 In terms of physically relocating services, the infrastructure costs faced by airlines would not necessarily be switching costs for relocating or reducing marginal services. While there may be costs in scaling down operations, for both based and inbound carriers, these are unlikely to be prohibitive. Rather, airlines are likely to face other switching costs in the form of loss of network benefits, loss of cargo revenue and loss of airline yields.

E244 The existence of the secondary slot market, with the possibility of slot selling and leasing and the tightening capacity constraints, also means that the cost of slot acquisition can be expected to be recovered. However, the illiquidity of this market may in some cases constitute a significant switching cost in terms of the risk incurred by airlines of not being able to re-enter Heathrow at a future date.

E245 In addition, the ability to sell, and lease slots to other airlines while retaining grandfather rights, can significantly reduce switching costs for airlines to switch away marginal services. However, even if switching costs are lowered because slots are purchased by other airlines (which could arguably make a better use of the slots than the switching airline), the airport operator is unlikely to be constrained by the exit because for every airline exit another airline entry would invariably follow.

E246 The network benefits derived from connecting passenger feed and the presence of strategic partner airlines found at Heathrow also cannot be found at another UK airport. This suggests that switching costs are particularly high for partner airlines of BA, the home hub carrier, while airlines in other alliances or unaligned carriers might face a slightly lower but still significant switching cost from the loss of network benefits. However, a small number of airlines with little connecting traffic and few partner airlines might be more able to switch away.

E247 The potential loss of cargo revenue (from cargo carried bellyhold on passenger flights) may also be an incremental switching cost for certain airlines, as the feed of cargo at Heathrow is the largest in the UK, due to the concentration of the air cargo community around Heathrow.

E248 In addition to traditional switching costs, airlines at Heathrow have told the CAA that operating to and from London, and Heathrow in particular, is of strategic importance to their business model. This suggests that the effect on these airlines' profitability from switching away from Heathrow would be likely to considerably outweigh any longer term benefits of constraining a price increase at the airport.

E249 The evidence is also clear that it is highly unlikely for any of the airlines at Heathrow to have countervailing buyer power. While airlines generally have – with the exception of BA – a relatively small share of the airport's passengers, they lack the choice of suitable substitutable airports.

E250 More fundamentally, the airlines, without exception, pay tariff rate on aeronautical charges, which strongly suggests that there exists little scope for negotiations, during which airlines might exert countervailing buyer power. This is in large part due to excess demand for slots, as this means that any switching would be likely to be filled by new entrants or expansion by other incumbent airlines, and the significant switching costs involved in switching away marginal services.

E251 In addition, a comparison of an estimate of the size of marginal airline traffic at Heathrow against the critical loss estimates suggests that the scale of actual switching is likely to be insufficient to constrain even a 5 per cent price increase by HAL.

E252 The capacity constraints (excess demand) at Heathrow also mean that HAL has little significant incentive to attractive new entrant airlines, although this is further considered in appendix G.

E253 Associated with the above, DfT forecasts suggest that capacity constraints will increase at Heathrow over the short to medium term. In addition, with the Airports Commission only reporting final proposals in 2015, it is highly unlikely that any new capacity will be available before 2025 at the earliest. It is also unclear, after the excess demand is accommodated, whether there would remain sufficient new capacity at Heathrow to significantly affect the airport operator's market position.

E254 Overall, based on the evidence outlined above, the degree of airline switching is likely to be insufficient to constrain HAL from profitably raising prices by 10 per cent, and above this level. Furthermore, based on future demand forecasts and constraints on capacity HAL's position is likely to be at least maintained in the short to medium term.